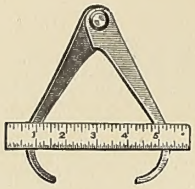

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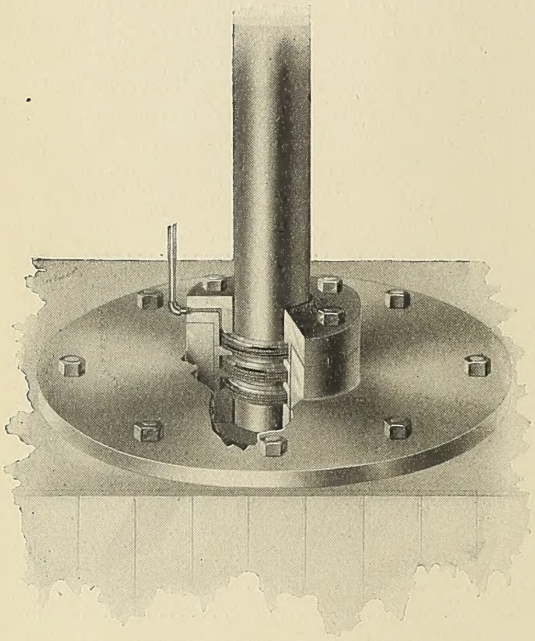

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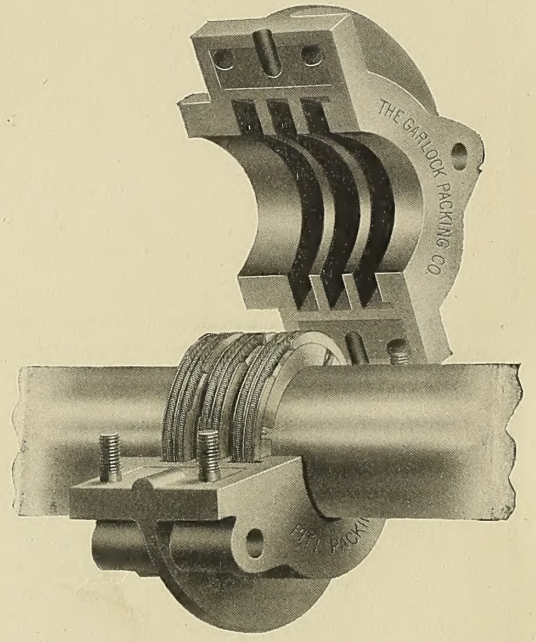

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Engineering appliances are described and illustrated in the 1906 catalogue issued by the Lunkenheimer Company, Cincinnati, Ohio. A description will be found on advertising page 13 of this issue. The catalogue will be sent free to all readers who will tear off the coupon in the lower right hand corner. The catalogue is the most complete ever issued by this company, and is in handy pocket size. Every engineer should send for a copy. Among the engineering specialties described and illustrated are valves of many varieties, including globe, angle, lever, throttle, non-return, check, generator, relief, and numerous others. This company makes also oil cups, grease cups, hydrostatic and mechanical lubricators, injectors, ejectors, whistles, oiling devices of various descriptions, water gauges, water columns, unions, elbows, couplings, tees and many other articles. The border of the advertisement is composed of 56 small cuts illustrating many of the articles the company makes.

Ball and roller bearings are described and illustrated in catalogue No. 12, issued by the Standard Roller Bearing Company, Forty-eighth street and Girard avenue, Philadelphia, Pa., a free copy of which will be sent upon request to readers of MARINE ENGINEERING. The catalogue states: "The use of roller bearings in machine construction has increased greatly during the past few years. The advantages to be expected from their use have been understood by mechanical engineers for many years, but poorly-designed bearings and lack of accuracy in their manufacture have usually resulted in an inferior and unsatisfactory article. The bearings which we manufacture are all of hardened steel and ground accurately, which, taken in connection with the mechanical construction of our product, produces bearings which have great durability, and which experience has conclusively shown, give perfect satisfaction. We know of no class of machine on which our bearings, in one form or another, have not been tried, the total number in use amounting to several hundred thousand, many applications of which are shown upon the last few pages of this catalogue."

Marine gasoline engines are described and illustrated in catalogues received by us from the following manufacturers, and free copies will be forwarded to all readers mentioning this magazine: Rathbun-Lacy Company, Toledo, O.; Hubbard Motor Company, Middletown, Conn.; Rochester Gas Engine Company, Rochester, N. Y.; J. J. Parker Company, Fulton, N. Y.; Chas. A. Strelinger Company, Detroit, Mich.; Frank M. Watkins Manufacturing Company, Cincinnati, O.; Wolverine Motor Works, Grand Rapids, Mich.; The Camden Anchor-Rockland Machine Company, Rockland, Me.; Fay & Bowen Engine Company, Geneva, N. Y.; Cooley Manufacturing Company, Waterbury, Vt.; Bridgeport Motor Company, Bridgeport, Conn.; Lozier Motor Company, 1 Broadway, New York city; Buffalo Gasoline Motor Company, 1280 Niagara street, Buffalo, N. Y.; Trebert Auto and Marine Motor Company, Rochester, N. Y.; Stamford Motor Company, Stamford, Conn.; Chase Yacht and Engine Company, 201 Pitman street, Providence, R. I.; Mianus Motor Works, Mianus, Conn.; The Gas Engine and Power Company and Charles Seabury and Company, Consolidated, Morris Heights, New York city; James Craig, 556 West Thirty-fourth street, New York city; D. M. Tuttle Company, Canastota, N. Y.; The Progressive Manufacturing Company, Torrington, Conn.; Charles J. Jager Company, 164 High street, Boston, Mass.; Barber Brothers, Syracuse, N. Y.; Perkins Launch and Motor Company, Gloucester, Mass.; Brown-Cochran Company, Lorain, O.; Smalley Motor Company, Bay City, Mich.; Yacht, Gas Engine and Launch Company, Philadelphia, Pa.; Fairbanks, Morse and Company, Chicago, Ill.; Lake Shore Engine Works, Marquette, Mich.; The H. C. Doman Company, Oshkosh, Wis.; Pierce Engine Company, Racine Junction Station, Wis.; Lamb Boat and Engine Company, Clinton, Ia.; Michigan Motor Company, Grand Rapids, Mich.; Haase Motor Works, Milwaukee, Wiss.; E. H. Godshalk and Company, Philadelphia, Pa., Standard Motor Construction Co., Jersey City, N. J., Lackawanna Mfg. Co., Newburg, N. Y., Murray & Fiegurtha Co., South Boston, Mass.

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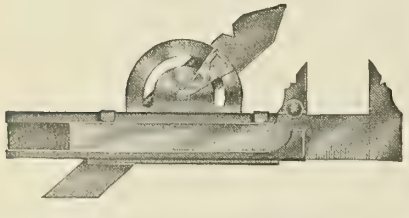
Users of lubricants will want to send for a free copy of a catalogue and price list issued by William W. Nugent & Company, 18 West Randolph street, Chicago, Ill., fully illustrating and describing the Nugent patent oiling devices. The catalogue is a neat one, vest-pocket size, of 48 pages and cover. It contains something to laugh at as well as to read and learn from.

Wireless clusters and lighting specialties are described and illustrated in catalogue B-16, issued by the Benjamin Electric Manufacturing Company, 42 West Jackson Boulevard, Chicago, Ill. The company states that since issuing its last catalogue numerous improvements have been made in many of the clusters and other devices shown, and a number of new specialties have been added. This company's wireless clusters consist of an insulated base of porcelain, two one-piece contact blades attached thereto, each serving light terminals of all lamps in the clusters, and each provided with a binding screw and a removable casing of brass or aluminum supported by porcelain rings or bushings of special design. In doing away with the necessity of wires in the cluster body by combining the necessary elements of sockets upon one base, the cost of installation is considerably reduced both for ceiling and pendant forms, and a neat, strong and well-insulated cluster results. This company's wireless clusters are said to be especially suitable for ship and yacht lighting.

"Things You Should Know About Elaterite Paint" is the title of a folder issued by the Elaterite Paint and Manufacturing Company, Des Moines, Ia. Regarding this paint the folder states: "The pigment is a pure carbon ore—Elaterite—which enters into one body with the oils thoroughly and readily. It is always elastic and pliable, has no sediment, and is always ready for use. Because of the great elasticity of the pigment ore it will cover more surface than other paints. Because of the natural affinity of the pigment ore for metal this paint gives a perfect protection for iron or steel, absolutely preventing corrosion. It is absolutely waterproof and will resist the action of acids, vapors, and steam as no other paint will. It can be used wherever any other paint can and is especially desirable for use in priming coats upon woodwork and for covering for both wood and metal where the surfaces are exposed to climatic conditions or the action of acids, steam, vapors, etc. It will last longer than other paints; does not lose its color; does not crack or peel off; does not become brittle; dries as rapidly as other paints and is more easily applied. Because of its elasticity for contraction and expansion it will withstand the most extreme climatic conditions without harmful effects. The pigment ore is not ground, but by a special process is converted into a liquid, in thorough combination with oils, which gives the paint an absolutely smooth and even surface. When applied to metal it makes a perfect air and waterproof covering beneath which rust will not form. Applied to wood it is a perfect preservative and prevents decay. It is heat-resisting, and when applied to hot surfaces, boilers, smokestacks, etc., will retain its natural color and wear longer than any other paint. For waterproofing uses, manufacture of tarpaulins, etc., it is unsurpassed. All other paints when used for waterproofing on duck or canvas within a short time become harsh and stiff, thus separating the fiber and permitting water to go through. Our Elaterite paint is not only a thorough waterproof coating but when used on duck or canvas remains soft and pliable, giving a surface that will not crack. It is acid-resisting and unequaled for use for coating pipes, vats, etc., which are brought into contact with acids, vapors, or dampness."



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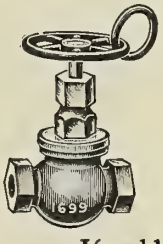

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17 BATTERY PLACE - NEW YORK CITY

"What's the Use of Lion" is the title of a very neat folder issued by the Macomber-White-Moon Company, 131 Worth street, New York, N. Y. Everyone interested in wire rope should send for a copy of the folder.

Cranes are concisely described and profusely illustrated in a handsome 112-page catalogue issued by the Wellman-Seaver-Morgan Company, Cleveland, O. This company makes a specialty of cranes for heavy work, and among the styles which it builds are electric overhead traveling cranes, shipyard cranes, and cranes for handling coal buckets, etc.

The Fraser Hollow Spar and Boat Company, Greenport, Long Island, N. Y., has issued a booklet illustrating and describing its hollow spars, which, the catalogue states, "are of the finest selected spruce obtainable, and are made in the best and most scientific methods. We guarantee these hollow spars to be first-class in material and workmanship, and we assure the yachting world that they have no equal in this or in any other country. Each spar is carefully designed to produce the best proportioned diameters and thickness of shell requisite for the necessary strength, rigidity, and durability. The cement used in the construction is our Mr. J. G. Fraser's secret composition, known only to him, and being, we believe, the only successful thing of its kind yet discovered. It is weather-proof, and retains its elasticity, so that no matter what the strain on the spars is, the cement remains perfectly intact, and to all intent a part of the yacht itself."

"How many times have you made a casting that was absolutely perfect without the smallest blow hole, crack or uneven surface? How many times have you thrown away a casting because of the very fact that it did contain these defects?" These questions are asked in a circular issued by D. N. Clark, Derby, Conn., manufacturer of Shelton metallic filler, with the remark that every time you did throw away a casting you threw away your profit. This circular states that when you apply the Shelton metallic filler to a casting it fits in perfectly, sets rapidly, blends faultlessly in color, rusts the same as the casting itself, and that no amount of rough usage will loosen it. It is a cement, which when mixed with water and applied to the casting, fills blow holes, cracks and uneven surfaces. The manufacturer states that its peculiar chemical property makes it a part of the casting itself.

Launches and yachts, electric, steam, gasoline, and sail, are described and illustrated in a handsome catalogue issued by the Electric Launch Company, Bayonne, N. J. Regarding this company's electric launches the catalogue states, "for comfort and safety, roominess, simplicity, cleanliness, and for everything that a pleasure boat intended for short cruises ought to be, the electric launch is the best. Comfort and roominess are secured by placing the battery and the motor under the floor, out of sight and out of the way. The entire cockpit and boat space is left free from any incumbrance. An upholstered settee, a table, a magazine and book rack, and cushions, take the place of a hot boiler and a noisy engine; and still there is room left for lockers and for an ice box sufficiently capacious for a cruise on a summer day. All the appointments of a large and luxurious steam yacht are to be found on the electric launch in miniature. The electric launch is the safest boat afloat, no inflammable fluid is carried and explosions are therefore impossible. Air tanks may be placed beneath the floor, rendering sinking out of the question. The man at the steering wheel need not be an engineer. He has no steam gauge to watch, no boiler in which to keep up steam, no dirty coal or oil to handle."

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The Walworth Manufacturing Company
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Pumping machinery, for operation by any power, is the subject of illustrated catalogue "G," issued by the Deming Company, Salem, O. This is a very complete catalogue of 110 pages, and in addition to describing the company's products, contains many tables, such as a table showing water required per minute to feed boilers; table showing the equivalents of pressure and heat of water; friction of water in pipes, etc.

"Engineering and Marine Specialties and Supplies" is the title of a catalogue issued by the James Reilly Repair and Supply Company, 229 West street, New York city. A free copy of this catalogue will be sent to every reader of MARINE ENGINEERING upon request. The catalogue comprises over fifty pages, is well illustrated, and describes in detail a number of specialties, including the following: the Quiggins patent evaporator, together with much information on the subject of evaporation and distilling, coil condensers, filters, marine feed-water heaters, grease extractors, shaking grate bars for marine and land uses, hot-blast furnace doors, boiler-tube retarders, snap hooks, side lines, cargo winches, strainers, condenser-tube packing and packing tools, deck pumps, ventilating pipes and cowls, etc. Every man connected with marine work should have a copy of this catalogue.

The application of Northern motor drive in hoisting work is the subject of leaflet No. 148, issued by the Northern Electrical Manufacturing Company, Madison, Wis. The leaflet states that it shows the adaptability of the various types of motors for hoisting service. "Figures 1 and 3 show some motor-driven hoists embodying the box-type machines, which were especially designed to meet the requirements of hoisting work. They are built with exceptionally sturdy shafts and liberal bearings and are designed to be applied to practically any type of service. We build these box type motors with bosses which can be drilled and tapped for fastening to the machine to be driven, or supplied with feet so that the equipment can be mounted with great ease under any conditions. Our box-type motors are built dust-proof and frequently supplied for use out of doors without requiring any special protection against weather and rain excepting that embodied in the machine design."

High-pressure automatic lubricators are described and illustrated in a pamphlet issued by the Pearl Manufacturing Company, 344 Oak street, Buffalo, N. Y. This catalogue states that "many force-feed lubricators have been put upon the market and have been partially successful when operating under low pressure. When put to work under the high pressure now in use, and especially when superheated steam is employed, they have failed to give satisfaction as, after a time, leakage through the valves occurs, lubrication becoming imperfect and intermittent, and the action of the pump becoming almost neutralized. Efforts have been made to overcome leakage by increasing the number of valves, with the obvious result of only delaying the final breakdown of the pump for a short time. Determining to overcome these difficulties, the Pearl Manufacturing Company has put a pump on the market that, more than any other, overcomes every objection that has hitherto annoyed the users of force-feed oil pumps."

"Superheated Steam" is the title of a folder issued by the Osborne Superheater Company, 204 Dearborn street, Chicago, Ill. According to this folder "the function of a boiler is to generate steam. A superheater is an auxiliary to a steam engine, not an adjunct of a boiler. A superheater should be as near the engine as possible, and, where practicable, should be fired with gas or oil. Petroleum products have completely solved the lubricant question. The Osborne process of, and devices for, superheating, have eliminated the question and met the demand for safety, durability, and automatic regulation. With a given engine, load, and conditions, there is but one steam pressure and one degree of superheat that results in the highest economy. Equally true it is that there is but one process that maintains the desired 'degree of superheat,' and that is the Osborne process. If in the judgment of a prominent and competent engineer a 'dry' superheater is 'too dangerous' for an open isolated manufacturing plant, what kind of a plant is it safe to install it in? Architects and designing engineers will promote the interests of their clients by specifying the Osborne superheater."

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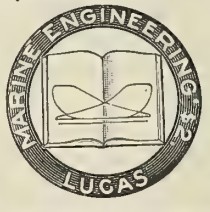

THE book contains 807 practical questions covering all branches and departments of the marine engineers' profession. Each question is a straight-forward proposition, and a good question often suggests many new ideas for study and practice. Each question is fully answered and explained, many with diagrams and illustrations. Also contains a complete course in mathematics for the Engineer, with forms and rules for useful measurements of water tanks, coal bunkers, speed problems; how to figure horse power and the latest and most complete safety-valve, rules, etc. Sent post paid to any address upon receipt of **$2**

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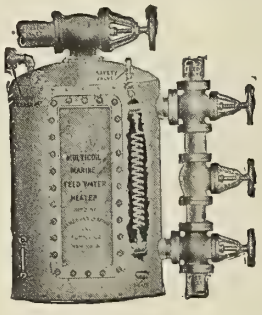

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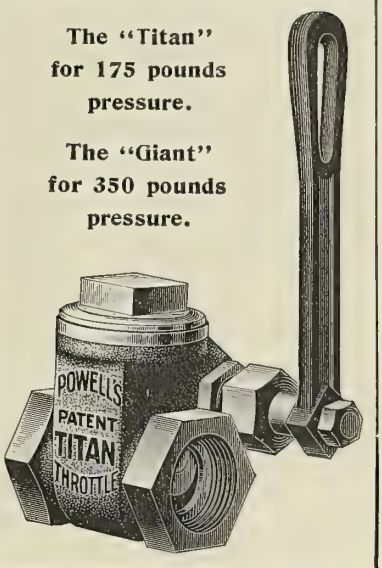

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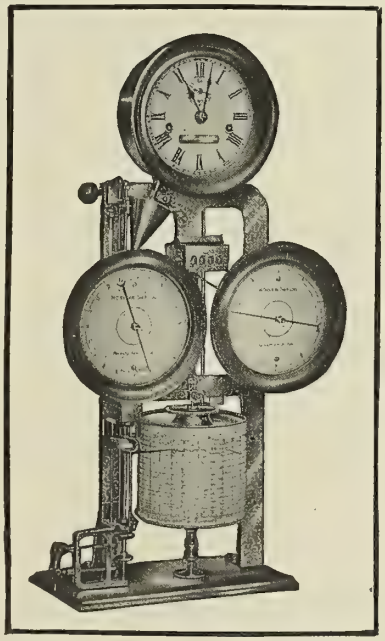

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Lead goods are described and illustrated in catalogue "D," issued by the Colwell Lead Company, 63 Centre street, New York city, a free copy of which will be sent upon application to all readers of MARINE ENGINEERING.

Second-hand gasoline engines, for sale by the Mianus Motor Works, Mianus, Conn., are listed in a folder this company is sending out. Anyone desirous of buying a second-hand engine should write for a copy of this circular.

Propellers for motor boats, is the very important subject discussed in a 20-page booklet issued by William T. Donnelly, 132 Nassau street, New York, N. Y. Mr. Donnelly goes into the question of the proper design of propellers purely from a scientific and engineering point of view, consequently every owner of a motor boat, as well as every builder of such boats and of gas engines, will want to send for a copy of this booklet, which can be had free upon application to Mr. Donnelly, and by mentioning MARINE ENGINEERING.

Lovekin tools are described in a pamphlet issued by the Scully Steel and Iron Company, Chicago, Ill. Among the tools and machines illustrated and described are pipe flanging and expanding tools and machines, valve-seat expanders, and finishing tools. Regarding its pipe flanging and expanding tools the pamphlet states "the tools and machines herein illustrated are based on an entirely new mechanical principle which is applied in a manner simple and easy of operation, and which produces definite results satisfactory from all points of view."

Marine plumbing specialties are described and illustrated in a 64-page catalogue issued by A. B. Sands & Son Company, 242 Water street, New York city. This is a very complete catalogue illustrating and describing, in addition to all the plumbing required on board a ship or yacht, many other articles, such as deck pumps, bilge pumps, tank pumps, force pumps, sea cocks, smoke heads, sea leads, mooring buoys, ventilators, wind scoops, manhole plates, and ranges. Any person at all interested in this subject should be sure to write to the A. B. Sands Company for a free copy of this catalogue.

Quick-adjusting, self-locking screw clamps, are described in an illustrated catalogue, No. 6, issued by the James L. Taylor Manufacturing Company, Bloomfield, N. J. The catalogue states "the Taylor screw clamps are designed to supply a long-felt want for an efficient and time-saving line of clamps. In the common clamp, known as the 'C' clamp, the long screw is objectionable on account of the great liability of its being sprung out of true or broken off by side strain; also on account of the time lost in running the long screw backward and forward when adjusting to work." These and other objections are claimed to have been successfully overcome by the Taylor clamps.

Tobin bronze, for pump piston rods and valve stems, pump plungers, valve faces, deck bolts and ship fastenings, linings for pumps, condenser-tube plates, launch shaftings, hull plates for yachts, centerboards, rudders, etc., is described in a catalogue issued by the Ansonia Brass and Copper Company, 99 John street, New York city. This catalogue gives full information regarding this company's Tobin bronze, and also gives copies of many testimonial letters received from prominent naval architects and yacht builders, such as the Herreshoff Manufacturing Company, Bristol, R. I.; William Gardner, 1 Broadway, New York city; Pusey & Jones Company, Wilmington, Del.; and W. & A. Fletcher Company, Hoboken, N. J.

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BUSINESS NOTES.

A SATISFACTORY WATER-TUBE BOILER.—The Mosher Water-Tube Boiler Company, No. 1 Broadway, New York, has received the following letter from Mr. W. K. Vanderbilt, Jr., dated November 20, 1905: "Charles D. Mosher, Esq., No. 1 Broadway, New York city. Dear Mr. Mosher: I thought it might interest you to know that the boilers you installed in the *Tarantula* last winter have proven entirely satisfactory in every way in their use for the last seven months. I have found them quick-steaming, economical in fuel, easily cleaned, and had no inconvenience from them in any way whatsoever. The boat was in constant use, steam being maintained almost the entire time from April 15 to November 2. The boilers have proven themselves in every way up to the standard as per our contract of August 8, 1904. Yours very truly, W. K. Vanderbilt, Jr."

DIAMOND ANTI-FRICTION METAL.—A circular is being distributed by the Diamond Anti-Friction Metal Company, 32 South Clinton street, Chicago, Ill., which contains a report from Chief-Engineer Fithian, U. S. N., of tests made of this company's metal. After describing in detail the manner in which the tests were made, and the results, the report states: "The experiments are sufficient to prove the greatly superior qualities of this metal over brass for bearings. 1. It reduces the friction of rubbing surfaces to a minimum, and possesses great durability. 2. It will not 'heat' or 'cut,' and will stand at least double the pressure when in motion that brass will, without retarding the speed of the rubbing surface. 3. It is in itself a partial lubricator, one of its ingredients being plumbago, which can readily be detected by rubbing it with the finger. 4. It requires about half the quantity of oil that brass does. The results of the tests were in every way successful and highly satisfactory, and, in my opinion, it is a most valuable metal for bearings in all kinds of machinery, and for marine-engine shaftings. Its cost is reasonable, and as brasses can be easily refilled when requiring it, its economy is evident. I have no hesitation in recommending a trial of it in the bearings of the engines of a naval vessel, and for general government service."

REVERSING CLUTCH FOR MARINE ENGINES.—The Holliday Manufacturing and Engineering Company, Chicago, Ill., states that its "clutch can be used in connection with any marine engine and propeller. By a slight movement of the lever of the clutch the propeller may be instantly turned in either direction or cut off entirely from the engine. Very little pressure is required to disengage the clutch. The gears of the clutch are always in mesh but are not in use and do not move, relatively, except when the propeller is reversed for backward movement. When going forward the clutch and propeller shaft are like a solid shaft joined together by the frictional parts of the clutch, consequently there is no noise. Connection is made entirely by friction between the surfaces of cone and hoods. The frictional surfaces will slip in starting, thus obviating any liability of breakage. The clutch sets itself after being thrown in, no locking device being necessary. The thrust of the propeller holds the frictional parts together thus obviating all undue friction on the shaft and yoke of the lever. The clutch is fitted with three sets of thrust ball bearings, thereby reducing friction to a minimum. All parts are nicely fitted and easily accessible. The main frame makes the propeller shaft as rigid as if solid from the engine out. Weeds or any foreign matter may be disengaged from the propeller by reversing, stopping, and starting it."

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Aids for Applicants for Marine Engineers' Licenses.

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THIS BOOK is devoted exclusively to the practical side of Marine Engineering and is especially intended for operative engineers and students of the subject generally, and particularly for those who are preparing for the examinations for Marine Engineers' licenses for any and all grades.

The work is divided into two main parts, of which the first treats of the subject of marine engineering proper, while the second consists of aids to the mathematical calculations which the marine engineer is commonly called on to make.

PART I.—Covers the practical side of the subject.

PART II.—Covers the general subject of calculations for marine engineers, and furnishes assistance in mathematics to those who may require such aid.

The book is illustrated with nearly **four hundred diagrams and cuts** made specially for the purpose, and showing constructively the most approved practice in the different branches of the subject. The text is in such plain, simple English that any man with an ordinary education can easily understand it.

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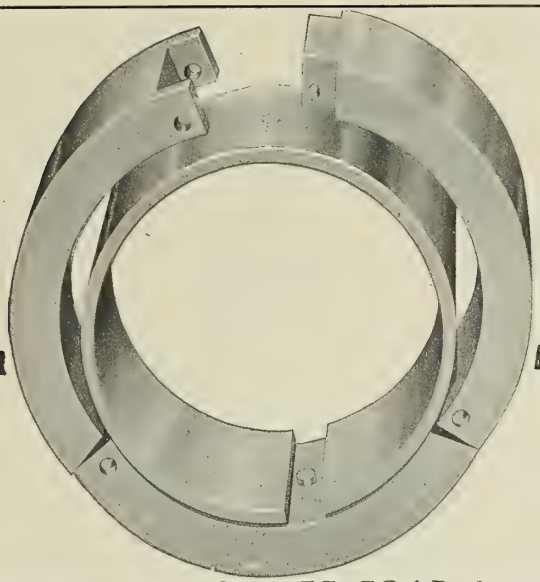

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A Draftsman Wanted who is familiar with marine water-tube boiler practice. Address the Parker Boiler Company, Pennsylvania Building, Philadelphia, Pa.

Draftsman wants position. Young man with experience and education, practical, capable of assuming full charge of designing and construction, wants position as shipbuilding draftsman in small yard. Address Y. X., care MARINE ENGINEERING, 17 Battery Place, New York.

Chief Engineer, having many years' experience on ocean liners and holding first-class British and highest grade American certificates, desires to obtain a more satisfactory position than he holds at present. Address C. E., care MARINE ENGINEERING, 17 Battery Place, New York.

SHIPMATE AND GALLEY RANGES are advertised by Elisha Webb & Son, Water and Chestnut streets, Philadelphia, Pa. This company states that it carries in stock a full line of these ranges, together with repair parts.

MARINE GASOLINE ENGINES are advertised by John V. Rice, Jr., & Company, Bordentown, N. J. This firm makes marine engines of all powers for any type of boat, and stationary engines for every description of stationary work. The company states that its two-cycle engines have obtained the speed of 3,200 revolutions per minute, and asks: "Does not this fact demonstrate perfect scavenging, carburation and reliable ignition?"

THE ROUND AIRPORTS for the Southern Pacific Company's steamer, now building at the yards of the Fore River Shipbuilding Company, Quincy, Mass., will all be furnished by the Delaware Marine Supply Manufacturing Company, Wilmington, Del. This company reports that it has so much business on hand that it is compelled to run its plant night and day.

IN ORDER TO CARE for its increasing business, the American Blower Company, Detroit, Mich., is erecting a three-story addition to its plant. This addition is made necessary by the growing popularity of its type "A" enclosed vertical self-oiling engine, which was placed upon the market two or three years ago. The first floor of the building will be used for erecting and testing engines. The second floor will be occupied for storing engine parts and painting the completed machines, and the third floor will be used for storage purposes only.

INDEPENDENT PNEUMATIC TOOL COMPANY'S NEW OFFICE.—On account of the rapid growth of its business in the Pennsylvania district, the Independent Pneumatic Tool Company, Chicago, Ill., has opened an office at 207 Germania Bank Building, Pittsburg, where the company will carry a complete line of Thor piston air drills, reversible flue-rolling, reaming, tapping, and wood-boring machines, and pneumatic riveting, chipping, calking, and beading hammers. Mr. Richard D. Hurley has been appointed manager of the office. Mr. James C. Dennis, a well-known salesman in the pneumatic tool business, has entered the company's employ, and will travel from the New York office.

DURING THE TWENTY-FIVE YEARS the Hohmann & Maurer Manufacturing Company, Rochester, N. Y., has been making thermometers for all industrial purposes, it has several times been obliged to move into larger quarters to accommodate the constantly increasing demand. To provide for future as well as for past growth, the company has purchased a tract of four acres on which it has erected a model manufacturing plant, having 65,000 feet of floor space with room for three times present space. The building has a frontage of 280 feet, and is arranged in the form of the letter "E," so that the manufacturing is done in four wings, each wing 40 feet wide, thus giving that important advantage—plenty of light. While the building is situated within one hundred yards of the main street in Rochester, it has special transportation advantages, being located on the line of the New York Central Railroad, and having its own switch for fuel, supplies and shipping purposes. To give an idea of the extent of this business it is only necessary to say that the space needed for handling the office work alone is 130 feet by 40 feet. This building not only trebles the company's capacity, but gives many other advantages such as naturally follow manufacturing carried on under modern factory equipment.

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The only thoroughly reliable flange packing in the world.

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Cor. Ninth and Cary Sts., Richmond, Va.
16 and 18 S. Capital Ave., Indianapolis, Ind.
1221-1223 Union Ave., Kansas City, Mo.
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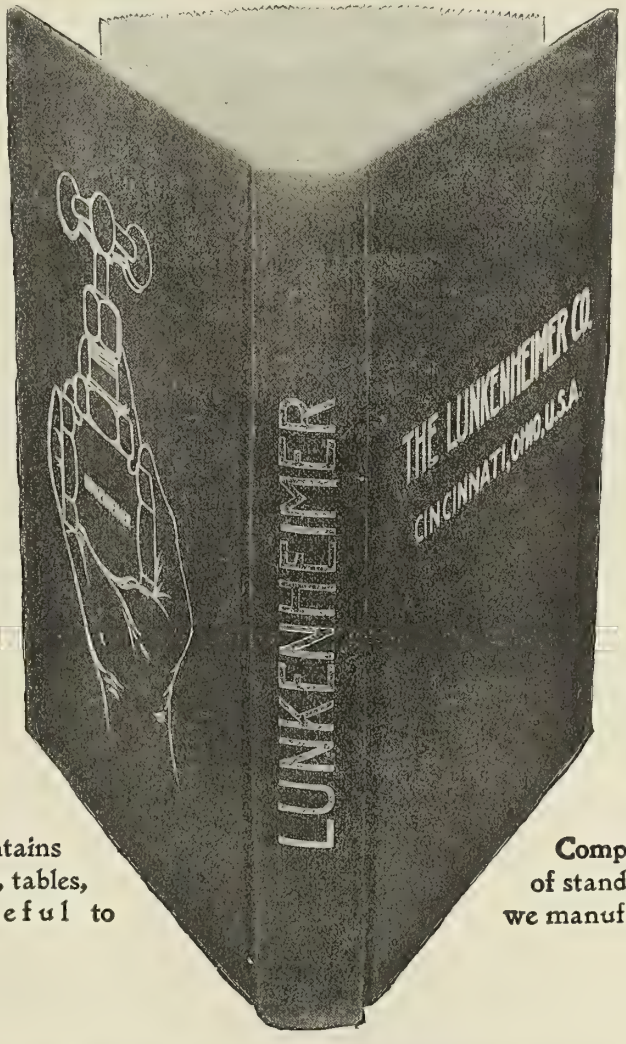

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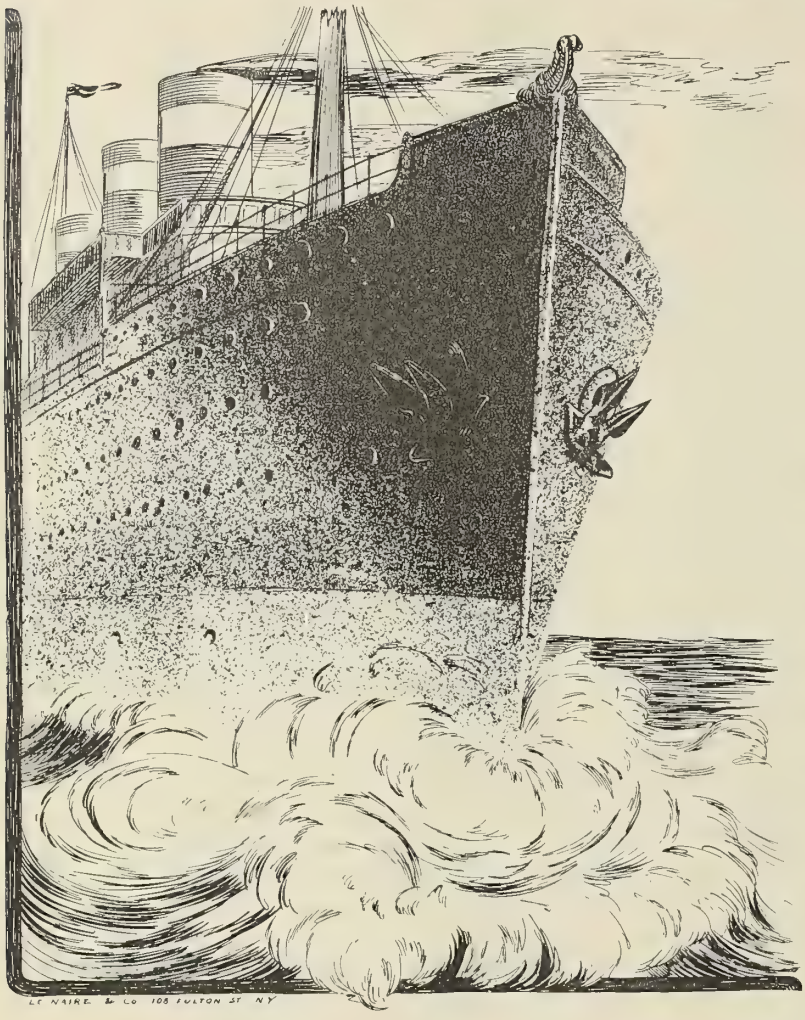

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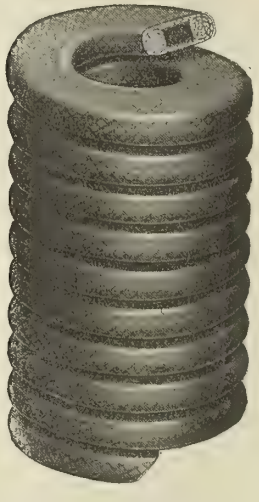

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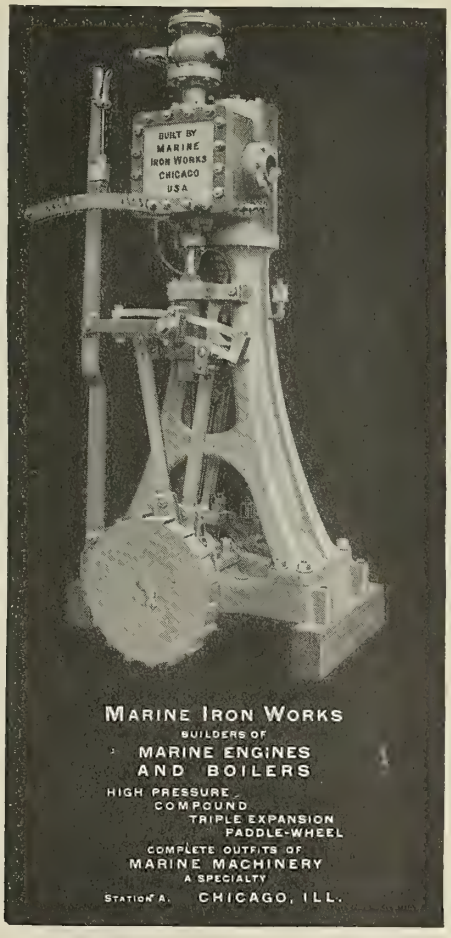

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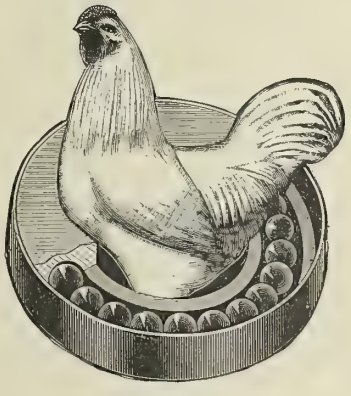

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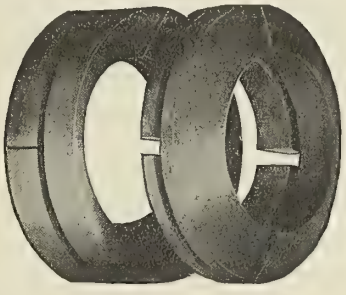

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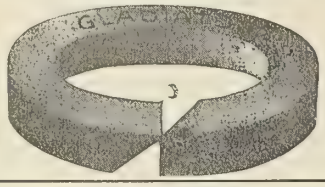

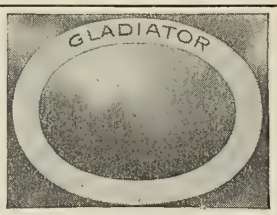

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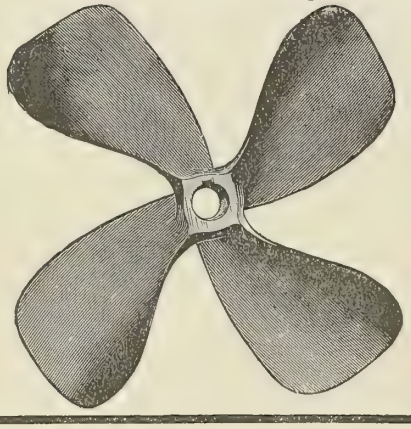

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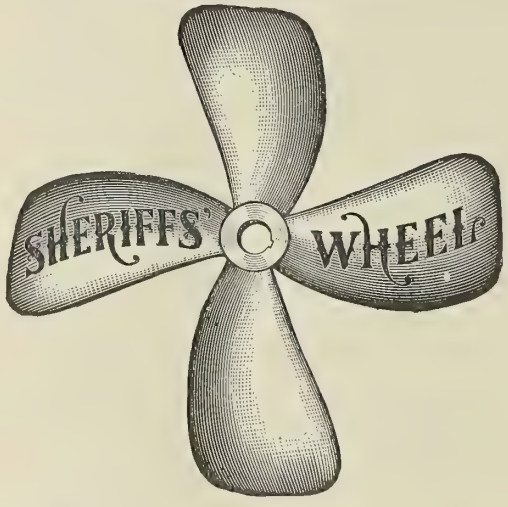

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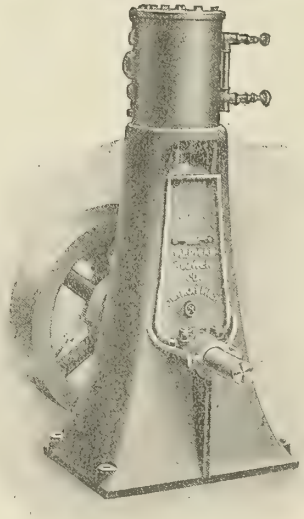

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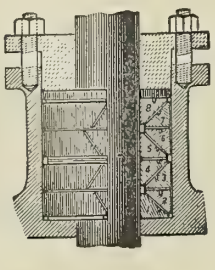

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TRADE PUBLICATIONS.

"A. B. C." heating apparatus is the subject of illustrated catalogue No. 186, issued by the American Blower Company, Detroit, Mich.

The "Little Jap" hammer drill is the subject of illustrated Bulletin No. 2003, issued by the Ingersoll-Rand Drill Company, 11 Broadway, New York city.

Renewable spring disc brass valves and flanged pipe joints, in which new and improved features have been incorporated, have recently been placed on the market by Crane Company, Chicago, Ill., and are the subject of a number of circulars, which will be forwarded free upon application.

The ammonia fittings which the De La Vergne Machine Company, foot of East 138th street, New York city, manufactures for use in connection with refrigerating machinery, are illustrated in a neat folder which this company is distributing. Copies can be had by application direct to the company.

Engineers should send to the Garlock Packing Company, Palmyra, N. Y., for the company's Catalogue H. This is a book of 136 pages, fully illustrated, and listing packing of every conceivable style for every imaginable purpose. In the index 180 styles of packing are named.

Chucks and flat drills are advertised by the George R. Rich Manufacturing Company, Buchanan, Mich. This company states that its tools are in use in most of the leading boiler shops and shipyards of the country, that a practical demonstration will be given if desired, and that they will be sent on approval to responsible parties.

Trucks of all kinds such as would be used in handling freight, packages, etc., on board ships, as well as in shops and store houses, are fully illustrated in a folder which is distributed by the Fairbanks Company, Broome and Elm streets, New York city. Free copies of the circular may be had by addressing the company.

The Rockwell hardening furnace, for high-speed tool steel, is described in a folder issued by the Rockwell Engineering Company, 26 Cortlandt street, New York city. This furnace is especially designed for hardening taps, drills, milling cutters, etc., made of the new high-speed steels which require a temperature of over 2,200 degrees to secure the best results. Full particulars will be given upon application to the manufacturers.

New staybolt clipper.—The Helwig Manufacturing Company, St. Paul, Minn., has recently placed on the market a larger size pneumatic staybolt clipper, to cut 1½-inch staybolts and less. In all other respects it has the same desirable features as this company's small pneumatic clipper which cuts up to 1¼-inch bolts; that is, having small inserted knives readily replaced at little cost, cutting off the bolts at any desired length straight and smooth ready for riveting.

Marine gasoline engines are described anl illustrated in a 30-page catalogue issued by Palmer Brothers, Cos Cob, Conn. This catalogue states that there are nearly 2,000 Palmer motors now in use in sailboats. Palmer Brothers have hundreds of testimonials on file, and they will be pleased to forward copies to those interested. In addition to motors this company manufactures launches, whistles, propellers and other launch and motor accessories.

The Mason pump governor is described in a folder issued by the Mason Regulator Company, Boston, Mass. This pump governor, so the circular states, is to the direct acting steam pump what the ordinary ball governor is to the steam engine. It attaches directly to the piston rod of the pump and operates a balanced valve placed in the steam pipe, thereby exactly weighing the amount of steam to the needs of the pump. By using one of these governors it is claimed that you can instantly set or change your pump to any required speed, which will be maintained in spite of variation in load or pressure.

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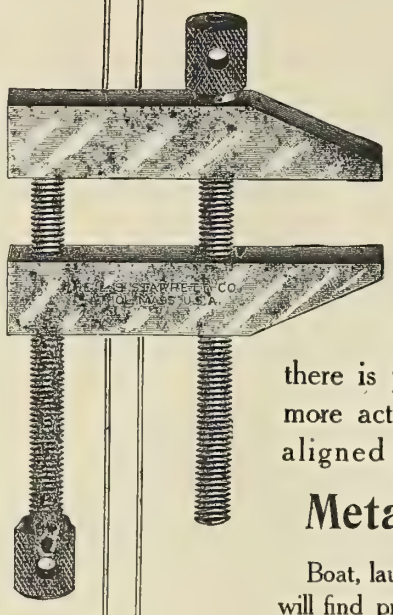
A quick-acting automatic safety stop valve, intended for use in connection with marine engines, hoisting, winding, and other types of engines, is illustrated in an eight-page circular issued by McLaughlin Brothers, Land Title Building, Philadelphia, Pa. The valve illustrated in the folder is known as the "Butterfly" type.

Vertical engines manufactured by the B. F. Sturtevant Company, Hyde Park, Mass., are illustrated and described in Bulletin No. 125. These engines are high-speed and automatic. A system of forced lubrication is provided, which together with the complete enclosure of the moving parts provides for continuous operation for weeks at a time without attention, and which it is stated insures perfect reliability even in the hands of unskilled workmen. This type of engine is designed for all classes of work requiring maximum power in minimum space.

Mechanical machinists' tools are described and illustrated in catalogue No. 107, issued by the Brown & Sharpe Manufacturing Company, Providence, R. I., a free copy of which will be forwarded to all readers of MARINE ENGINEERING who mention this magazine. The catalogue is a handsomely printed and illustrated volume of 164 pages, and describes a vast number of tools of interest to all machinists, such as tool gauges, bevel protractors, calipers, combination squares, depth gauges, engineers' scales, boiler plate gauges, hook rules, drill gauges, mercury plumb bobs, pocket sheet metal gauges, steel rules, try squares, etc.

Pneumatic tools and appliances are described in a handsomely printed and illustrated catalogue of 192 pages issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. This catalogue, which will be sent free to everyone mentioning MARINE ENGINEERING, covers the company's entire line of pneumatic tools and appliances, together with a complete list of prices for repair parts entering into all the tools in general use, including the "Boyer" and "Keller" products. The first advertising literature issued by this company eleven years ago consisted of a 16-page folder, which seems very small compared with the present complete catalogue. On March 1, 1905, the Chicago Pneumatic Tool Company bought the Philadelphia Pneumatic Tool Company, manufacturers of the "Keller" tools, and thus greatly enlarged its scope. The company also makes the Franklin air compressors in more than one hundred sizes and styles. Anyone at all interested in the subject should be sure to apply for the catalogue.

The American Thompson improved indicator is the subject of a folder issued by the American Steam Gauge & Valve Manufacturing Company, 208 Camden street, Boston, Mass. The folder states that the parallel motion of the American Thompson improved indicator is the most accurate of any. The ration of the pencil lever is three to one, making it very stiff and rigid and impossible for the slightest error to escape being shown in diagram. The paper cylinder movement is so arranged that the tension of the coiled spring can be increased or decreased for different speed engines. The regular instrument will give accurate results for all practical purposes, providing sufficient tension is given the drum spring to keep the cord taut at all points. The leading pulley is of the improved swivel pattern. By this device the use of carrying pulleys is often done away with, as the cord can be carried to any angle desired without interfering with the smooth running of the instrument. The American Ideal reducing wheel attached to the indicator was designed to accurately reduce the motion of an engine crosshead to that required for a paper drum of an indicator.



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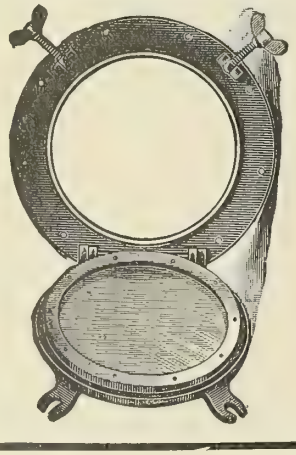

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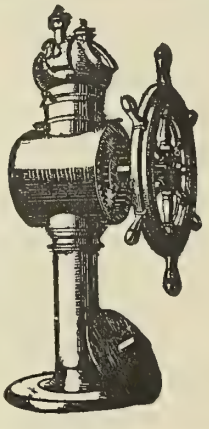

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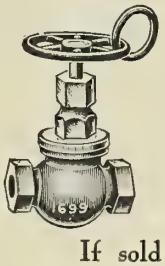

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If sold separately the price of the charm is Fifty cents
CUT SHOWS ACTUAL SIZE

MARINE ENGINEERING
17 BATTERY PLACE - NEW YORK CITY

Every sea-going man should send to Benjamin Varnum How, 106 Tremont street, Boston, Mass., for a free copy of a catalogue of Arbecam's Alidade adjustable compass, deviation corrector, position and distance finder. The catalogue is very neatly printed, and contains an illustration and complete description of the device, together with testimonials from a number of prominent sea-going men, as to the great value of this device.

"The Thermit Process in American Practice," is the subject of a pamphlet issued by the Goldschmidt-Thermit Company, 43 Exchange Place, New York city, a free copy of which will be forwarded upon application. The thermit process of welding through the ignition of finely-divided aluminum and metallic oxide starts a reaction which produces a heat of about 5,400 degrees, and at the same time reduces the iron oxide to a metallic iron almost free from carbon in a highly superheated fluid state. Thermit steel has about twice the temperature of open-hearth steel, and a correspondingly greater fluidity.

CALENDARS RECEIVED.

The Ashton Valve Company, 271 Franklin street, Boston, Mass., a calendar calling attention to its pop valves and guages,

The Amsler Engineering Company, Pittsburg, Pa., a calendar with a clay relief picture of a gas producer, and calling attention to the company's gas producer and three pass hot blast stove.

David Kahnweiler's Sons, 2 Dover street, New York City, a calendar calling attention to the company's life preservers and life rafts.

Moran Towing and Transportation Company, 10 South street, New York City a nautical calendar and tide table giving storm warning signals and time of high and low water for every day in the year at Sandy Hook, Governor's Island and Hell Gate; also the quarters of the moon.

Ross Valve Company, Troy, N. Y., a neat card calendar in a leather case advertising this company's regulating valves for steam or water, and feed water filters for marine or stationary boilers.

Sheriff's Manufacturing Company, Milwaukee, Wis., a large wall calendar calling attention to the fact that this company manufactures propeller wheels of all sizes, cast iron or steel, steam steerers and marine machinery of all kinds; besides being in the repair business. The company has been doing business for 52 years.

Star Brass Manufacturing Company, 108 East Dedham street, Boston, Mass., a large wall calendar calling attention to the company's pop safety valves, steam water and vacuum gauges, revolution counters, marine clocks, relief valves, globe and angle valves, indicators and other marine specialties.

H. B. Underwood & Company, 1025 Hamilton street, Philadelphia, Pa., a large wall calendar calling attention to this company's cylinder boring bars, radius planer attachment, portable milling machines, boring bars for lathe work, portable crank pin tuning machines, and rotary planing machines.

Elisha Webb & Son, Corner Water & Chestnut streets, Philadelphia, Pa., a calendar calling attention to its ship chandlery and marine cooking and lighting apparatus. This is also a nautical calendar giving the quarters of the moon, the time of sunset and sunrise, etc., and in the back are charts showing colors of various international signal codes, storm warnings, etc., and a tide table for the Atlantic coast.

1842 Walworth

The Shadow

of the Stillson Wrench is as close to the mechanic to come as is the tool in the hands of the millions of active workers at large to-day. Where there is no

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there's no need for a wrench.

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1906 Walworth

BUSINESS NOTES.

Speed Launch for Sale.—John E. Thropp & Sons Company, Trenton, N. J., has for sale a speed launch 60 feet long, 8-foot beam, scow-type model, compound engine, pipe boiler; good for 300 pounds pressure.

The Keuffel & Esser Company, 127 Fulton street, New York City, states that the recent fire in its factory did only minor damage, and will make no serious interruption in its business.

Gold Medal at Liege.—The Chicago Pneumatic Tool Company, Chicago, Ill., has been awarded the gold medal at Liege for its pneumatic tools and appliances, and the silver medal for its Franklin air compressors. The gold medal was the highest award for pneumatic tools and appliances.

A pocket compass will be sent free to any reader of Marine Engineering who will write to the Smooth-On Manufacturing Company, Jersey City, N. J., U. S. A. On the bottom of the compass is a reference to Smooth-On cement, Smooth-on gaskets and Smooth-On packing.

"The Edson diaphragm pump withstands treatment under which any other hand-power pump would give out completely," says the Edson Manufacturing Company, 255 Atlantic avenue, Boston, Mass. The company states that there are no cylinders and plungers to stick, no packings to dry or shrink, no loose parts to get astray, and no delicate valves to choke.

A very large order for freight elevators was recently closed through the Pittsburg office of the Otis Elevator Company, 17 Battery Place, New York, for a single installation of 44 freight elevators in the new building of the Pittsburg Terminal Warehouse Company, Pittsburg, Pa. These elevators have a lifting capacity of 6,000 pounds, and a car travel of about 100 feet.

New detent motion for the American-Thompson improved indicator.—The American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass., manufacturer of the American-Thompson indicator, states that the greatest improvement ever added to the steam engine indicator is the new improved detent motion which this company uses. This attachment, so the company states, makes the indicator particularly adapted to high-speed marine and stationary steam engines and gasoline engines. With this attachment it is possible to connect the indicator to high-speed reducing motions and stop the drum of the indicator without unhooking the card or stopping the engine.

Free sample of water-proof canvas.—A folder issued by Edward A. Bunker, P. O. Box 1579, New York City, sole agent for the United States and Canada for William Wilford's water-proof cloth, states that a genuine water-proof canvas that will be impervious to water has long been sought for, but that until recently such material has been water-proof in name only. Wilford's water-proof cloth, so the folder states, is made of a twisted thread of pure flax which renders it very strong, light and durable. It will not crack like cotton cloth, and it is said to have none of the objectionable qualities which pertain to cloth treated with paraffine, oil, or paint.

An efficient grease extractor and feed-water heater.—The Greacen-Derby Engineering Company, Perth Amboy, N. J., states that "various methods have been used for keeping oil out of boilers, but that the only method that has stood the test of years is forcing the water through a filtering medium which will absorb or prevent all foreign matter from passing. Another important point is that it must be possible to entirely renew the filtering medium as soon as it becomes foul." The Blackburn Smith patent feed-water heater and grease extractor, manufactured by the Greacen-Derby Engineering Company, embodies, so the company states, the experience of years of manufacturing and a careful study of all the points that have been raised by engineers using these filters. This company makes filters for fitting on either the discharge or the suction sides of feed pumps. Some of the users of the Blackburn Smith filters are the Great Northern Steamship Company, on the *Minnesota* and *Dakota;* the William Cramp & Sons Ship and Engine Building Company, to the extent of 13,000 horsepower; the New York Shipbuilding Company, etc.

Oxide of Zinc

And nothing besides

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gives a permanent, clean white or tint on vessels—interior or exterior.

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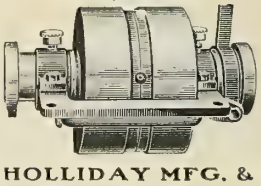
For Marine Engines



Perfect control over propeller. Frictional surfaces are fibre against iron. Thrust of propeller holds frictional surfaces together. Fitted with thrust ball bearings. Gears are not in use, except when propeller is reversed, but are always in mesh. No noise. Simple, compact, light in weight and thoroughly reliable. Several sizes.

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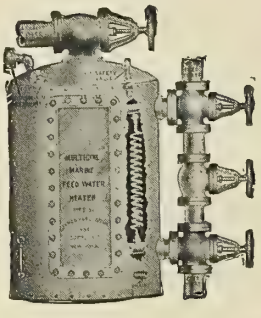

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Reversible and Re-Grinding

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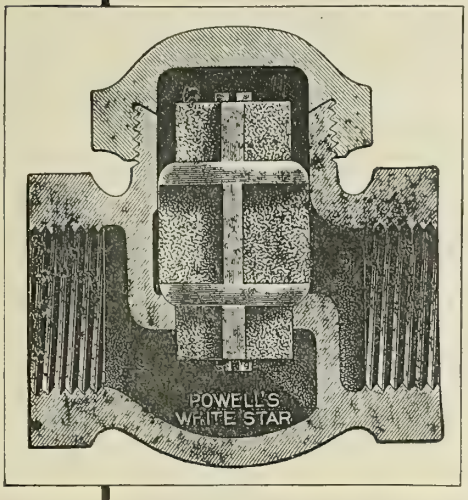

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Will withstand a temperature of 2,000 degrees.

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MARINE ENGINEERING, 17 Battery Place, New York

Heat resisting paint as a preservative coating for engine fronts and fire boxes, is manufactured by the Elaterite Paint and Manufacturing Company, Des Moines, Ia. The company states that its paint will not pile up, wash off, blister or peel, and that it covers three times more surface than any other front end material, applied in half the time, giving a permanent, smooth, black surface.

Orders for pneumatic tools.—As the result of a recent test of pneumatic hammers by the Jones & Laughlin Steel Company, Pittsburg, an order has been placed with the Dayton Pneumatic Tool Company, Dayton, O., for thirty No. 3 "Green" chipping hammers. The Dayton company has also received an order for thirty-eight "Green" hammers of miscellaneous sizes for shipment to Japan.

"Mildoo-Proof" is the name of a composition sold by Charles D. Durkee & Company, 2 South street, New York City, which, it is stated, prevents sails from mildewing. This composition is said not to rot the sails and its cost is only about one cent per square yard of the material to which it is applied, besides rendering it perfectly easy for every person to protect his own sails.

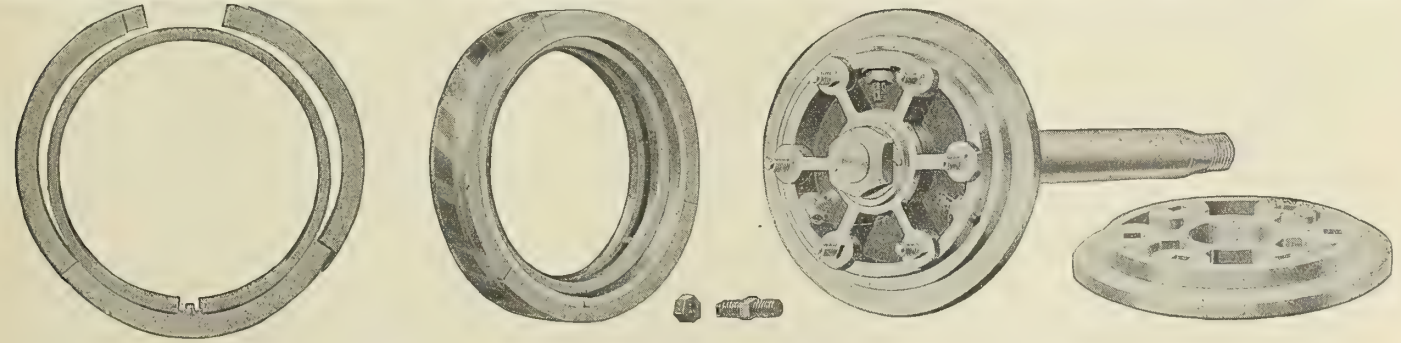
Working models for engineering students, consisting of eight cards illustrating engine-slide valves, are being put on the market by McLaughlin Brothers, Land Title and Trust Building, Philadelphia, Pa. What the price of the models is we do not know, but the series in an interesting one in illustrating in a very simple way the action of the different slide valves. A small book accompanies the cards to explain their action.

Large pneumatic tool order.—The American Car and Foundry Company has recently added to its equipment at the Madison plant, Granite City, for the construction of steel and composite cars. Among the equipment are 100 Boyer long-stroke riveting hammers manufactured by the Chicago Pneumatic Tool Company, Chicago, Ill. The Chicago Pneumatic Tool Company reports that business in general continues good and the prospects for the remaining year very bright.

The technical and scientific courses of the Young Mens Christian Association, Detroit, Mich., are enrolling students from the various boats on the Great Lakes, who are studying for marine engineering and similar subjects. There are both night and day classes. Among the subjects listed in a folder the association is distributing, are marine engineering, mechanical drawing, architectural drawing, the steam engine, the gas engine, and electricity.

Frederick S. Nock, naval architect and builder, East Greenwich, R. I., reports that he is rebuilding the steamer *Active*, owned by Messrs. Rooks & Havens, the boat being raised about 18 inches, new frames, deck, cabin house, etc., put on her. The schooner-yacht *Esperanza*, owned by J. D. McKee, of Pittsburg, is being fitted with a new deck. He is also building a 33-foot hunting cabin launch, and among the designs in progress is a 35-foot speed launch for D. N. Perry, of Wyandotte, Mich.; a 70-foot high-speed cruising power boat for Boston parties, which craft will be equipped with a 300-horsepower engine.

The Sizer Forge Company, Buffalo, N. Y., has recently made a number of forged-steel crankshafts for three-cylinder marine engines for the United States government. The machining included boring out the pins and shafts to reduce the weight of the cranks and also drilling and planing all oil ways, etc. The shafts and bearings were ground to a gauge furnished by the government, and were absolutely accurate both as to size and roundness of the bearing points. They were accepted and passed by the naval inspector without hesitation. The Sizer Forge Company reports that it has a large amount of this class of work on hand.



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Rings made of ribboned bearing metal pressed with graphite interposed, making a flexible lubricated packing, are advertised by the Pennsylvania Metallic Packing Company, Diamond Bank Building, Pittsburg, Pa., on the front cover of this month's issue of Marine Engineering. The company states that its packing will be sent on 90 days' approval.

There is a wide field of application of motor drive in which conditions are extremely severe. This class of service includes crane and hoisting work. The Northern Electrical Manufacturing Company, Madison, Wis., has developed a line of box-type motors. These equipments are completely inclosed and thus dustproof. They are frequently built weatherproof. This class of motors has an extremely sturdy armature shaft and liberal bearings, and compact although accessible arrangement of the motor parts. Bulletin 32 is descriptive of these equipments.

The Robsmith Specialty Co. has opened offices in the Provident Building, Philadelphia, Pa., and represents the Power Specialty Company, Detroit, Mich., for the Diamond blower for the Philadelphia district. The firm has selling rights and is arranging for sole rights for a high-grade marine and stationary grate bar, a super-heater and other articles which increase the economy of the boiler and power plant. It is also arranging for the manufacture of specialties in this line, in which it holds patent interests. The firm will design complete power plants, with particular reference to economy of installation and operation, and will arrange for equipment of same.

A new device for lowering lifeboats.—The Marine Safety Appliance Company has been organized by Captain Frank W. Irvine, of New York City, lately in the service of the Ward line. This device is a gear worked by hand, which can be attached to any davit now in use. One is placed at the bow and the other at the stern of the lifeboat, on deck. After the boat is hoisted the davits swing out automatically. No pushing or pulling is required and the lowering of the boat is entirely in control of two men in charge of the gears. The gear may also be used on liferafts. It occupies a space of only 14 by 24 inches. It is claimed by the inventor that the hoisting swinging out and lowering away of lifeboats by this device can be done in less than one minute in all kinds of weather by two men only.

General Electric Company Awards at Portland Exposition.—Announcement is made that the supreme jury at the Lewis and Clark Exposition has approved the following awards in the electrical department, relating to the exhibits of the General Electric Company, Schenectady, N. Y., which is the largest manufacturer exhibiting in that department. The highest award granted by the jury is a gold medal. This company received a gold medal for the best exhibit in the electrical department, and also gold medals on each of the following features of this exhibit: Curtis steam turbine; meters and instruments; time limit relays and oil switches; switchboards, meter-controlling panels; circuit breakers and lightning arresters; direct and alternating-current motors; direct and alternating-current generators; static transformers; automatic voltage regulators; magnetic arc lamp; alternating and direct-current enclosed arc lamps; mercury arc lamps; magnetic starting device for mercury arc lamps; mercury arc rectifier; railway motors and controllers; mining locomotives; searchlight and method of control; progress and development in the art. For its new metalized carbon filament incandescent lamps the company also received a gold medal. This exposition, in common with all the recent American expositions, is lighted by Edison incandescent lamps, furnished by the General Electric Company. A unique feature was the extended use of meridian lamps.

The creation of draft.—"Although the ultimate object of any means of draft production must necessarily be to create draft or velocity sufficient to provide the required amount of air and to carry off the gases, yet this portion of its work is almost infinitesimal as compared with the demand made for sufficient pressure to overcome the resistance of the fuel and the boiler. In other words, the ability to create sufficient pressure difference is the primary requisite to burning a given quantity of fuel, rather than the ability to move a certain amount of air. Draft-producing apparatus is not, therefore, to be based merely upon the total number of cubic feet to be moved per hour, as determined by multiplying the coal consumption by the allowance of air per pound of coal. If this were the case, a low chimney, or a large slow-running fan, would meet the requirements. In reality, the relatively immense resistances of fuel and boiler demand that the chimney or fan shall first be designed to create sufficient intensity of draft to overcome these resistances and to create the requisite velocity. This velocity must be such that, if multiplied by the full area at which it is measured, the product will equal the volume of air necessary for the combustion of the stated amount of fuel. The height of chimney or the diameter and speed of fan necessary to create the draft thus shown to be required having been determined, it is only necessary to make the capacity such as to accommodate the given volume of air." (From Treatise on Mechanical Draft, by the B. F. Sturtevant Co., Boston, Mass.)

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Horizontal slab milling machines are described and illustrated in catalogue No. 42 issued by the Newton Machine Tool Works, Twenty-third and Vine streets, Philadelphia, Pa.

Catalogue No. 0511 describes and illustrates industrial railways made by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y. This is a complete catalogue of 64 pages, and anyone interested in the subject of industrial railways in manufacturing establishments, ship yards, etc., should not fail to send for a copy. The catalogue states: "Suppose a track and a few cars in a manufacturing establishment save the wages of a boy at only fifty cents per day. This saving of $150 per year would pay ten percent interest on an investment of $1500."

Marine motors and motor boats are described in a handsomely illustrated catalogue issued by the Pierce Engine Company, Racine Junction Station, Wis. The catalogue states that the various types of motors and boats illustrated and described have all been carefully tested. Pierce outfits, it is stated, are not the cheapest on the market, but are built from the best material obtainable, by skilled workmen. In designing them, the company had in mind to produce a boat and engine so safe and reliable that any man might take his family for an outing with perfect safety. The engines are stated to be extremely simple to start and operate. They can be run fast or slow at will, and are claimed to be noiseless in operation and extremely economical in the use of fuel. A free copy of this catalogue will be forwarded upon application to readers who mention MARINE ENGINEERING.

"How to Save Fifty Percent Now Spent on Coal and the Utility of Hollow Bolts as Stays and as Factors Bettering Combustion" is the title of a booklet by Mr. John Livingstone, which is being distributed by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio. This is an interesting work of 64 pages and contains two practical papers read by Mr. Livingstone before the St. Louis and New York Railway Clubs. The subject of the first of these papers is "Coal," its uneconomic use and abuse generally, by steam makers but especially by railways and how to save fully fifty percent. This paper takes up the subject of the production of coal in this country and the waste of coal which is common to steam locomotives. After showing how great this waste is, Mr. Livingstone tells some of the ways by which this waste may be very materially reduced. The title of the second paper is "The Quality and Utility of Solid and Flexible Hollow Staybolts in Iron and Copper," being a paper read before the New York Railway Club. In this paper Mr. Livingstone takes up the discussion of the various kinds of staybolts and the advantages and disadvantages for use in locomotive boilers. Mr. Livingstone says in his introduction: "The part which hollow staybolts may play in overcoming the wastes in fuel burning may be no mean part. I have lead up to the possibilities by first quoting from the latest United States naval fuel board report. It is most valuable in that it is an authentic report of new tests made by the authority of the Government of the United States. It points to the losses in the failure to burn the hydrocarbons of the fuel, the losses of the formation of the carbonic oxide in the furnace and the losses by the escape of sparks and cinders from the furnace unconsumed. An inflow of air through the hollow staybolts carrying oxygen to the fire should be a self-evident benefit to the fire, for all those losses arise from the lack of oxygen. The losses from the escape of the hydrocarbons to the smoke stack unconsumed may be twenty percent or more according to the percentage of volatile matter in the coal. There is the loss in the formation of carbonic oxide and from sparks and cinders sent out of the stack; ten to twenty percent may go out of the stack as sparks, some of which as cinders, may be caught in the front end unconsumed. There is a further loss from the impurities of the coal which cannot be estimated, but it is a most serious one. I refer to the losses from coal intermixed with silica, slate, stone and iron, all of which cannot be burned but strangle the burning of the coal and defeat its perfect combustion."

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When writing to advertisers please refer to MARINE ENGINEERING.

Centrifugal pumps are described in a catalogue issued by the G. W. Price Company, 523 Market street, San Francisco, Cal. The catalogue states that the Price pumps are made from entirely new designs and patterns, and contain many new and valuable features. The company guarantees its machinery to be of the best material and workmanship and will replace any part showing defects in material or workmanship, within one year from date of sale.

Marine gasoline motors are the subject of an illustrated pamphlet issued by W. S. Howard, Yonkers, N. Y., which states that "the Howard Mercedes type of marine motors is the result of many years of experience in this field. Many of my motors built in 1894 are still in operation." Mr. Howard states that he was formerly head of the motor department of the Gas Engine & Power Company and Charles L. Seabury & Company, Con., Morris Heights, N. Y., and that he has had experience in building about 4,000 motors.

The Crosby new indicator is the subject of an illustrated booklet issued by the Crosby Steam Gage & Valve Company, 97 Oliver street, Boston, Mass. This booklet states "this instrument is a departure from the ordinary steam engine indicator. One difference is in the location of the spring. This has been removed from the cylindrical case near the piston to the outside, and is attached above the moving parts, where it will remain cool under all conditions, thus preventing errors arising from overheating. Another and more important difference is the size and shape of the piston, which is one square inch in area, and is in form the central zone of a sphere, thus proving great active force with a light pencil mechanism. It is attached by a rod directly to the upper part of the spring, and moves freely and without restraint notwithstanding there may be eccentricity in the action of the spring." The booklet reproduces the original test cards of a variety of springs.

Smooth-on elastic Cement Instruction Book is the title of a booklet issued by the Smooth-On Manufacturing Company, Jersey City, N. J. Engineers who read the following letter will probably want to send to the company for a sample of its iron cement: "Your engineer called on me at the Secaucus Power Station some months ago and wanted me to try your SMOOTH-ON Elastic Cement, which I positively refused. At the same time I had a leaky steam drum which I had caulked five different times by different boiler makers, and every time the job was done it was a failure. The boiler makers told me there was no way to stop the leaks, except putting on a new steam drum. I about had my mind made up to that, but I was limited on boiler capacity and could not drop the boiler long enough to have the job done. I then thought of what your engineer had told me regarding SMOOTH-ON Elastic Cement and sent for him; he looked at the drum and said SMOOTH-ON would stop the leaks. It was applied two weeks ago and I am more than pleased to say that the steam drum is as tight as a bottle. SMOOTH-ON Elastic Cement is mine as long as I can buy it. It beats anything I have ever used or ever seen used since I have been in the business, which is twenty-five years. Respectfully yours, J. L. Snellen, Chief Engineer."

"Forced draft" said Admiral Melville, in a recent paper, "dates back to Stevens' *Rocket*, and its first use for marine purposes was by Mr. Robert L. Stevens on the Hudson River steamers in our own country prior to the Civil War. During that war Mr. Isherwood built a number of gunboats which used forced draft, but it had fallen into disuse until about 1882 for naval vessels, when it was introduced into the English navy and still later was applied in the merchant service. In naval machinery forced draft has been of the greatest possible importance, because it has reduced boiler weights probably almost one-half. In the navy the natural limitations as to space and weight prevent the use of forced draft with very much economy of fuel. It is obvious that if the rate of combustion is increased from 15 pounds of coal per square foot of grate to 40 pounds, there ought to be an attendant increase of heating surface. In the merchant service, or at least in certain classes of vessels in that service, it is possible to do this, and in one of my annual reports I made a comparison between the boilers of a merchant vessel called the *Iona* and those of the *Baltimore*. In the *Iona* there were 75 feet of heating surface for one grate, while in the *Baltimore* the ratio was about 30 to 1; but had the *Baltimore's* boilers been designed with any such ratio, their weight would have been almost double the weight of all the machinery of that vessel as actually built." The B. F. Sturtevant Company, Hyde Park, Mass., manufacturer of forced draft, engines, generating sets, etc., is distributing literature upon this subject, and free copies will be forwarded upon application.

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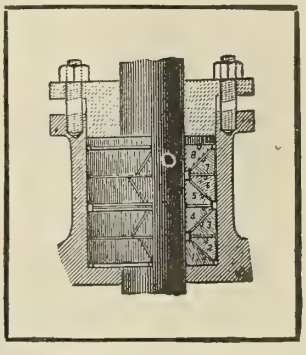

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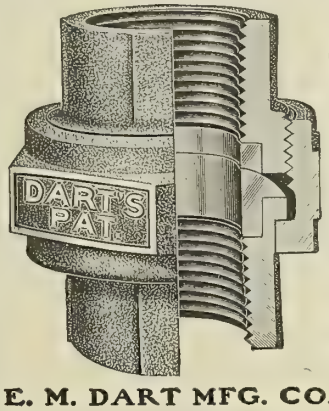

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Those interested in compressed air and electrical appliances should send twenty-five cents to the Ideal Power Publishing Company, 1508 Fisher Building, Chicago, Ill., and have their names placed on the subscription list of *Ideal Power,* which is published monthly.

The Morehead return trap is described in an illustrated folder issued by the American Blower Company, Detroit, Mich. This folder states that "the installation of a device which will during the first year of its use show a saving above the cost price must be a valuable investment," and that the Morehead return trap is such a device.

"Roofing Rules, a Hand Book on Sheet Metals in Building Construction, for Engineers, Architects, Etc.," is the title of a booklet issued by Merchant & Evans Company, Philadelphia, Pa. This work "has been prepared to present to owners and others in simple form the various points regarding metals in building construction with the hope that it will prove of value in making a selection of such materials." A free copy will be forwarded upon application.

Oil filters and exhaust heads are described in a 48-page illustrated catalogue issued by the Burt Manufacturing Company, Akron, Ohio. The catalogue states "practically the only expense in connection with an oil filter is in its first cost which will be saved to the user in a few months. The filters described in the following pages are guaranteed to last for many years, requiring only the expenditure of a few cents at long intervals for the renewal of the filtering material."

Solid crucible cast steel hammers are described and illustrated in a 46-page catalogue issued by the David Maydole Hammer Company, Norwich, N. Y. The catalogue states that it is more than sixty years since David Maydole began the business of hammer making and that the name Maydole has always stood for the highest quality of hammers. The catalogue states that any Maydole hammer which proves to be defective may be returned and replaced with a new hammer.

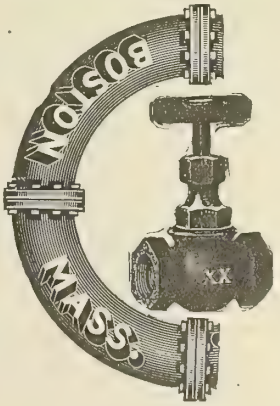
Speed propeller wheels, manufactured by the Michigan Motor Company, Grand Rapids, Mich., are described in illustrated catalogue "C." These wheels are of various types: two and three blade reversible and solid and adjustable. They are made of a special bronze, of metal patterns accurately balanced and highly polished. This company also makes reversible friction clutches, couplings, and thrust bearings in addition to its complete stock of marine gasoline motors. The latter are described in separate catalogues.

Safety boiler mountings are described and illustrated on both sides of a large wall chart issued by Alexander Turnbull & Company, Ltd., Bishopbriggs, Glasgow, Scotland. Among the devices shown are valves for all pressures from one pound to one thousand pounds, for water, steam, air and other gases; for pipes, boilers, economizers, engines, receivers, etc. This chart is accompanied by a key giving the names and describing the parts of the various specialties illustrated. All interested in the subject should send for a copy of this chart.

"The Bullard Automatic Wrench is a radical departure in wrench construction, being designed on scientific principles to overcome all the defects of other wrenches," is the statement made in a catalogue issued by the Bullard Automatic Wrench Company, Providence, R. I. This catalogue states that the Bullard is not merely a new wrench with this or that feature improved, but a distinctly novel wrench operating on a new principle giving increased range, maximum power, and greatest endurance. The company states that it proves all its assertions by actual demonstration and gives a written guarantee that the Bullard wrench will do all that it is claimed to do. The catalogue and full particulars will be sent free upon application.

Mr. Engineer

you should prove your purchases. Get your evidence from the balances. When you've got your weight-value fixed, then see that the thick-and-thin of it means the wear and tear that your money should cover. The sixty-three years of our business life were spent in giving you the solid values that will stand any test. The kinds of Valves we make are limited only by the needs of Steam, Water and Gas work.



WALWORTH MFG. CO., - BOSTON

BUSINESS NOTES.

"Electrically operated hoists," says the General Electric Company, Schenectady, N. Y., "combine the advantages of electric transmission with ease of control and safety and reliability of operation under severe industrial conditions."

The B. F. Sturtevant Company, Hyde Park, Mass., is advertising generating sets from 3-K. W. in size, which is the smallest the company builds, up to its 100-K. W. vertical cross-compound type with forced lubrication, water shed partition and complete enclosing case.

Any engineer writing the Strong Machinery and Supply Company, 48 Franklin street, New York City, giving the name of his concern, the size of plant, number of pumps, etc., and mentioning Marine Engineering, will receive a very handsome colored photo-engraving called "The Best Gift of All."

Capstans, windlasses, steering apparatus, brass airports, coaling scuttles, mechanical telegraphs, flags and signals, fenders, buoys, etc., are made by the Marine Manufacturing and Supply Company, 157 South street, New York City, which states that it always has on hand a complete stock of ship builders' and yachting supplies and marine hardware of all kinds.

The Chapman Valve Manufacturing Company, Indian Orchard, Mass., makes a specialty of valves and fire hydrants for marine work, and states that it has equipped a majority of the United States Government's battleships and cruisers during the past ten years. This company makes valves operated by hand, electric or hydraulic power.

"Oxide of zinc," says the New Jersey Zinc Company, 71 Broadway, New York City, "gives a permanent clean white or tint on vessels, interior or exterior." This company will send free of charge upon application a number of pamphlets on the subject of zinc paints, viz: "The Paint Question," "Paints in Architecture," "Specifications for Architects," "French Government Decrees," and "Paint: Why, How and When."

The interlocking rubber tiling, manufactured by the Goodyear Tire and Rubber Company, Akron, Ohio, forms an integral body, says the manufacturer, of tough elasticity, capable of absorbing and distributing the great listing strain on the decks and floors, thus avoiding the possibility of breaking or cracking and enabling the tiling to last as long as the boat. It may be laid in any design or in any color. It is water-proof and may be washed without rotting. A free catalogue and sample tiles will be forwarded upon application to any reader mentioning Marine Engineering.

The only second hand engine on the market that was made by the Marine Iron Works, Station A, Chicago, Ill., has, according to the manufacturer, just been located. The Marine Iron Works states that it is in receipt of a letter from a yacht broker saying that he has for sale one of the company's engines which he offers at what he considers a very low price, the engine having been "in use nine years without repairs and still in perfect condition." This engine was offered to the Marine Iron Works at exactly ten percent higher than the company charges for a duplicate engine built new to order. The Marine Iron Works says that its statement of years: "We do not know where you can buy a second hand engine of our make. For some reason or other they don't reach the second hand market," is no longer literally true.

Marine thrust bearings are advertised by the Standard Roller Bearing Company, 48th street and Girard avenue, Philadelphia, Pa. Regarding the Standard roller thrust propeller bearings used on the steam yacht *Aphrodite*, 3400 H. P., the report of the engineer was: "The roller thrust bearings worked excellently, and we got six revolutions more out of the engine with the same cut off than before it was put in, not saying anything about the saving in coal. We have run about 1100 miles, and have put no oil in thrust bearings since we started, and as for care, the oilers have almost forgotten that there is a thrust bearing in the ship. The saving in coal on the *Aphrodite* was between four and five tons per day." During the past five years this company has equipped 20 large and more than 200 small vessels with its roller bearings.

THE U. S. GOVERNMENT

specifies 75% of OXIDE OF ZINC in paints for light-houses. The exposure of a ship is identical with that of a light-house. OXIDE OF ZINC is the only white paint for ships.

THE NEW JERSEY ZINC CO.

71 BROADWAY
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Our Practical Pamphlets:

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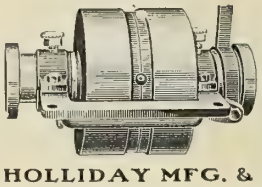
We do not grind zinc in oil. A list of manufacturers of high-grade zinc paints will be furnished on application.

Holliday Reversing Clutch
For Marine Engines



Perfect control over propeller. Frictional surfaces are fibre against iron. Thrust of propeller holds frictional surfaces together. Fitted with thrust ball bearings. Gears are not in use, except when propeller is reversed, but are always in mesh. No noise. Simple, compact, light in weight and thoroughly reliable. Several sizes.

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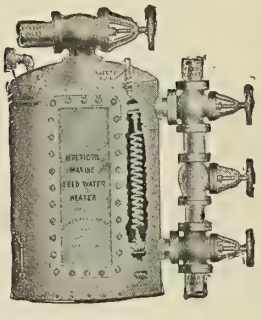

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RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

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TRADE PUBLICATIONS.

Type "D" direct current motors are described and illustrated in Bulletin No. 224 issued by the Sprague Electric Company, 527 West 34th street, New York City.

Engineers interested in the subject of lubrication should **ask** the Joseph Dixon Crucible Company, Jersey City, N. J., **to put** them on the free mailing list of *Graphite* which this company publishes. Every letter contains one or more articles of interest to engineers, both marine and stationary.

"The recording gauge is to the coal pile what the time clock is to the pay roll," is the statement made by the American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass. An illustrated folder issued by this company says that the company's recording gauge tells exactly just what is going on in the boiler room every hour, day or night.

The Flannery Bolt Company, Pittsburg, Pa., is sending to its many friends a very handsome desk calendar, which not only **gives** the various days of the month but information regarding the moon, etc. The calendar is mounted in a neat leather frame and is one of the most attractive of the season. We infer that any reader of Marine Engineering will have one sent to him free of charge if he mentions this publication.

"Boats and Engines, also everything for Boats and Engines" is the title of a pocket size catalogue being distributed by Terry and Company, 92 Chambers street, New York City. It comprises 32 pages bound in a neat cover, and is a catalogue that every man who has to do with the designing, building or using of launches, yachts, etc., should have at hand. Copies can be had free by mentioning Marine Engineering.

The Warner & Swasey prism binocular is described and illustrated in a booklet issued by the Warner & Swasey Company, Cleveland, Ohio. The booklet states that the common opera glass magnifies 2½ or 3 diameters. The old type of binocular magnifies 4 or 6 diameters. With these powers the fields of view are respectively 2, 4, 3 and 2¾ degrees. The company states that its lowest power of binocular magnifies 6 diameters and has a clear field of view of 6¾ degrees. The company makes its binoculars in three sizes magnifying respectively 6, 8 and 10 diameters.

Emmons Boats is the title of a handsome catalogue of over seventy pages which is being sent out by the E. Gerry Emmons Corporation, Swampscott, Mass. Probably any reader of Marine Engineering can have a copy free of cost by communicating with the company. This company devotes itself to sail boats, power boats, row boats, tenders, skiffs, dinghys, dories, canoes, etc. These boats are illustrated in great variety throughout the catalogue and the general design and construction of each type is fully described. Prices are given in almost every case. In the back part of the catalogue is the description of the Emmons Gasoline engine, together with some half a dozen or more illustrations of engines of different sizes. Every launch and yacht owner should send for a copy of this catalogue.

A free copy of a catalogue describing all the products manufactured by the D. T. Williams Valve Company, Cincinnati, Ohio, will be sent to readers of Marine Engineering upon request. Since the last catalogue was issued by this company new tools and appliances have been added to the factory, so that the company is now in shape to handle orders of any size and to guarantee both material and workmanship. The catalogue contains over sixty pages and includes a wide list of valves and steam specialties, such for instance as regrinding valves suited to steam connections of all kinds, and valves of all types, together with check valves, companion flanges, glasses for gauges, etc., air cocks, fusible plugs, oil and grease cups, brass unions of a variety of types, Cookson separators for steam or oil service, the separators being of the vertical type or horizontal as preferred, Cookson steam traps, etc. Every one of our readers at all interested in the subject of steam fittings should have a copy of this catalogue.

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When writing to advertisers please refer to Marine Engineering.

BUSINESS NOTES.

The star condenser packing tool manufactured by Matteson & Drake, The Bourse, Philadelphia, Pa., has revolutionized, so the manufacturers state, the old laborious method of packing tube ends of surface condensers, and effects a saving of 50 to 60 percent in time over any other tool. It is possible to use larger corset lacing with this tool than by another, thus producing the quantity required. Condensers packed with the Star tool are absolutely tight, and in several cases a pressure of five feet head was successfully placed on a condenser packed with a Star, before placing the ferrules, without developing any leaks. A record has been established of packing 1200 ends in 5½ hours with the Star tool. A folder issued by this company gives an illustration of a man packing the starboard condenser head on the United States Cruiser *Pennsylvania,* while under construction at Cramp's shipyard.

A new gasket has been placed on the market by the Smooth-On Manufacturing Company, Jersey City, N. J. The company states: "For mechanical uses the ever-increasing steam, water, air and gas pressures, call for improvements in joint connections to withstand the highest pressure, which have been the subject of much thought and study by experts especially on the subject of gaskets. Such joints must be absolutely air, water and gas tight under any pressure. They must be easily and quickly made and taken apart. The joint should be as thin as possible. The joint should not leak when hot or cold from unequal expansion. The gasket should not cause electrolysis. Therefore on iron pipes a gasket composed of iron should make the best joint. The attention of engineers is called to a corrugated iron gasket coated thinly with a special iron cement that appears to fill these requirements, and is said to make the thinnest and strongest gasket in use and the nearest to a ground joint. It is as durable as the pipes it connects as well as being one of the cheapest gaskets. The principle of a slight expansion found in these gaskets when made up makes the connection tight and strong, which is not obtained in inert or dead material commonly used for such purposes. Joints made with this packing are ready for use as soon as completed and can be taken apart when necessary and the same gaskets used again. These gaskets will keep indefinitely."

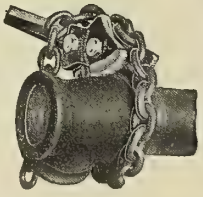
The novel features of the Stayman self-expanding pistons are stated by the manufacturer, the Stayman Manufacturing Company, 143 Liberty street, New York City, to be as follows: That they are self-expanding. The inner spring ring allows the expansion and contraction of the interlocking segments so that they automatically adapt themselves to variations in temperature and any unevenness in the cylinder. That this interlocking self-expansion makes it steam tight. That there are never any complaints, because the rings never need regulating and are never out of order. Just simple strong parts that will not break in the most severe service. That they are almost frictionless: the piston can be pulled back and forth by hand. That the wear of any cylinder having a piston with steam set rings is greatest at the ends of the cylinder, where the initial pressure is the highest. The Stayman Piston overcomes this by having the rings set out with just sufficient pressure against the cylinder walls to make it tight, and being so arranged as to prevent steam from getting in behind them, thereby preventing the enormous wearing pressure on the rings which occurs in the case of steam set packing. That they produce greater engine efficiency, because the section of the piston rings are set against the walls of the cylinder just tight enough to form a true bearing, with a minimum of friction, thereby admitting of perfect tightness with practically no wear.

THE
"IDEAL" CHAIN WRENCH

Just the thing for Shipyards and Steamships.

CAN PUT UP WORK FASTER THAN ANY OTHER WRENCH.

See the V shaped jaws, which take firm hold of round or square headed fittings or any irregular surface.



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HEAT, WATER and ACID PROOF
For all classes of vessel uses and for either metal or wood surfaces.
ABSOLUTELY NON-FOULING.
WILL NOT BLISTER, PEEL, OR WASH OFF

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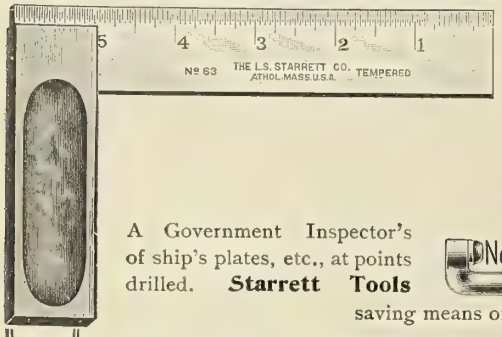
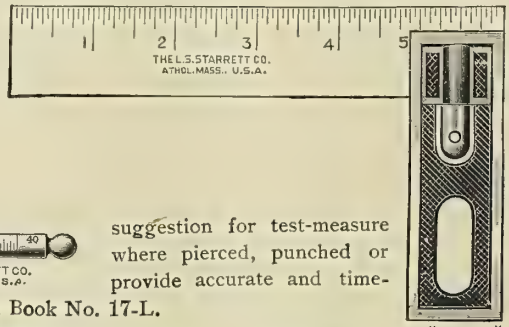


Through the Hole

For exact measure



A Government Inspector's of ship's plates, etc., at points drilled. **Starrett Tools**

suggestion for test-measure where pierced, punched or provide accurate and time-saving means of meeting mechanical requirements. Read Book No. 17-L.

THE L. S. STARRETT CO.
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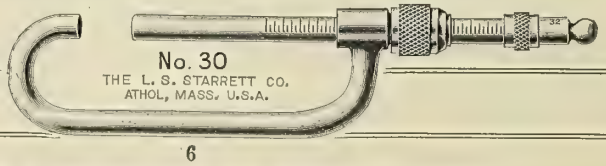

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GRAPHITE

AS A CYLINDER LUBRICANT

has many advantages for the marine engineer, in providing excellent lubrication for engines and pumps, with none of the disadvantages of cylinder oils.

If you are not thoroughly posted on GRAPHITE LUBRICATION, write for our Booklet No. 75-C and FREE TEST SAMPLES.

Joseph Dixon Crucible Co.
Jersey City, N. J.

WALWORTH MFG. CO.
Established in 1842.

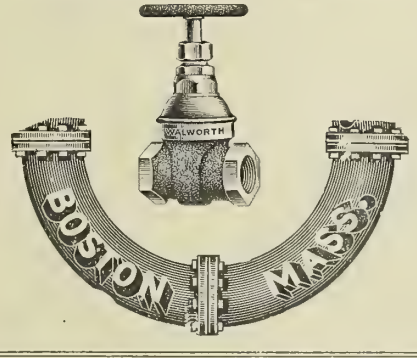
Engineers' and Steam Fitteers' Tools and Supplies

Boiler Room and Engine Fittings

VALVES OF ALL KINDS

GENUINE STILLSON WRENCHES

SEND FOR FREE CATALOGUE
128 FEDERAL STREET



The Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., states that the orders for Franklin compressors having exceeded its factory's capacity, the compressor works are being enlarged so as to give an anual output of 700 machines.

Condensers, suction valveless air pumps, single duplex and triplex vertical air pumps, feed water heaters, fire pumps, bilge pumps and boiler feed pumps are advertised by the C. H. Wheeler Manufacturing Company, Philadelphia, Pa. Those interested should send for a free catalogue.

The H. W. Johns-Manville Company, 100 William street, New York City, has established two new departments. One of these is a railroad department devoted to railroad supplies, of which the company manufactures a great variety. The other is an export department organized to facilitate the handling of the company's immense foreign business.

A new boat company. The Detroit Boat Company, Detroit, Mich., issues a preliminary catalogue in which the company states that although when the catalogue was issued the plant was not quite completed, so that attractive photographs were not possible, yet it expects to have a new and complete catalogue issued very shortly, and that the company has already accumulated a large stock of launches, 16x25 feet in length. The company states that it will have a very interesting story to tell in its new catalogue, regarding 30-foot cabin boats, and asks all readers of Marine Engineering to send for a copy at once.

Boats for inland lakes and rivers.—Many inland lakes and rivers are so situated that although well built steamboats are greatly needed and would prove a source of considerable profit if of the right design, it is impossible to deliver them, except in sections and parts, or on some similar basis. This state of affairs justifies the careful attention of those experienced in marine design and construction, and having the best facilities for such work. For these conditions is recommended the all-steel frame work for wood planked boat hulls of moderate size such as are made by the Marine Iron Works, Chicago, Ill. This method produces a substantial boat, and one that can readily be transported in small packages.

Boat builders should send to Department 10 of the Adams & Elting Company, Chicago, Ill., for information regarding this company's paint and varnish remover and tinted enamels. The company states that its paint and varnish remover takes off old finish-paint shellac or varnish from any surface in a few minutes, and that it does not raise the grain or injure the finest veneer; accomplishing in ten minutes what could not be done in hours with the torch or scraper. The company's enamels are especially prepared elastic enamels that are said to stand the hardest strain without cracking or marring and are not affected by moisture or atmospheric conditions. They may be cleaned off with a damp rag. The Adams & Elting white marine paint is a water-proof paint, and the company states that it will not crack or scale. This company also makes copper paint, brass polish, crack fillers, mission finishes and everything else in the marine paint line.

KATZENSTEIN'S
METALLIC PACKINGS

Of different designs for stuffing boxes of engines, pumps, etc.

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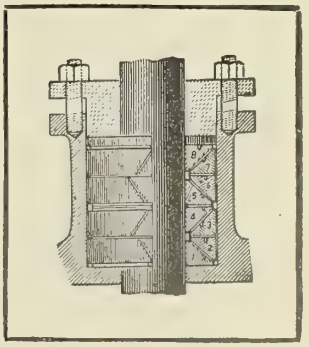

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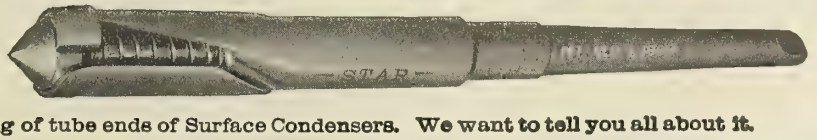

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Engineering students should send to Theo. Audel & Company, 63 Fifth Avenue, New York City, for information about the Hawkins Engineering Course in seven volumes, which may be obtained by making small monthly payments. The subjects treated embrace the mathematics of engineering with examples, mensuration, algebra, firing of boilers, boiler repairs, pump management, steam heating, plumbing, steam engine running and construction, valve setting, taking indication cards, engineers' examinations (with questions and answers), dynamo and motor management, instructions for operating an electrical plant, and self-help mechanical drawing.

A busy engine shop.—James H. Paine & Son, Noank, Conn., write to Marine Engineering that business is decidedly better and the outlook is very good. Among the orders just completed or now under way are: a fore and aft compound engine to be installed in one of Lancroft Brothers' oyster steamers, removing a single cylinder engine, and a decided saving in fuel has been shown. They have completed repairs on the fishing steamer *Annie L. Wilcox*, consisting of a new tail shaft, stuffing box, propeller wheel, crank pin, new valve and other minor repairs, and are just completing a compound engine, a duplicate of the one furnished Lancraft Brothers, which is for Mansfield & Sons' Co., Fairhaven, Conn., to replace another single, in one of their oyster steamers. This company is also rebuilding two compound engines for the new lighter which is building at the local yard, and has the contract for the entire machinery for the new 115-foot twin screw steamer building for the New Bedford Tow Boat Company, which will consist of two fore and aft compound engines having cylinders 11 and 25 inches in diameter by 16 inches stroke, driving two 66-inch propeller wheels. Steam is to be furnished by two Almy water tube boilers having 62 square feet of grate. A full outfit of auxiliary machinery, all of large size, to be furnished for these engines.

A new boiler compound. Mr. Peter B. Bird of the Bird-Archer Company, 209 Washington street, New York City, has been granted a patent for a new boiler compound. This compound is for preventing incrustation in boilers and consists of mercury combined with an alkiline salt or oil, together with a vegetable astringent and tannin, gambier, shumac, hemlock or the substance commercially known as kutch, and small proportions of animal oil, and a carbohydrate, such as textrine, gum arabic, starch or molasses. The compound is made up in the form of a soluble extract or viscous substance in which the ingredients are all thoroughly combined ready to be used with the addition of water, and it can be made up and stored without deterioration. In making the extract the following approximate proportions are used: One pound of vegetable astringent as tannin. One pound of alkali as soda ash boiled in about one pint of water until dissolved. To this solution is added one pound of carbohydrate above mentioned to each gallon of liquid and the solution is boiled until the carbohydrate is dissolved. The solution is then cooled, and to each gallon thereof there is added about ten ounces of a saturated solution of mercury, preferably in the form of a salt; as, nitrate, oxide or chloride in an oil, such for instance as an animal oil or its equivalent, which solution of mercury salt dissolves in the alkili solution, forming a heavy viscous substance or paste, the whole being then ready for use upon the addition of water to make it fluid. This paste will keep indefinitely without separation or deterioration, and in this extract form, it can be shipped long distances, thus making it suitable for ships on long voyages. The compound is not limited to the exact proportions as above mentioned as these will vary in detail according to the particular nature of the water with which the compound is to be used. In using this compound about one pound should be used to each 100 H. P. to remove the scale formed and thereafter smaller quantities to prevent the formation of new scale. A closely adhering amalgam is formed by this compound on the surface of the boiler below the water line which prevents pitting, corrosion, and galvanic action without being of such a nature as to cause any loss of heat. It is claimed that this compound will do away with the necessity of using zinc for preventing galvanic action.

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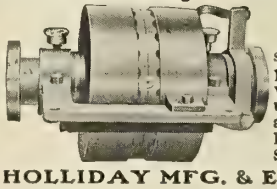

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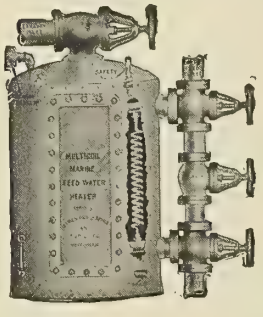

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TRADE PUBLICATIONS.

Launch builders and users will be interested in a circular which is distributed by the Krone Auto Parts Manufacturing Company, 1255 Michigan avenue, Chicago, Ill., describing the Krone carburetor. The description is very complete and is accompanied by an excellent cut of the device, so that the subject may be fully understood.

Every engineer and other reader of International Marine Engineering, who has to do with lubrication, should send to the Pearl Manufacturing Company, 344 Oak street, Buffalo, N. Y., for a copy of a very handsome folder in which the Dietz high-pressure automatic lubricator is illustrated and described. This folder not only gives a full description of the lubricator but explains fully its operation and the manner in which its lubricants are used.

Lubricating oils are the subject of a handsomely printed and illustrated catalogue of 32 pages issued by A. W. Harris Oil Company, Providence, R. I., a free copy of which will be sent to all readers of International Marine Engineering mentioning this magazine. The catalogut states that the company has in mind not only the production of the highest class of lubricant, but also the adaptation of special oils to special conditions. In compound engine lubrication, for instance, an oil that gives perfect results in the high pressure cylinder may not prove economical or efficient on the low pressure side. The lower pressure, lower temperature, greater surface over which the oil film is distributed and greater weight of the parts for which it is to form an anti-friction cushion on the low pressure side, create conditions which must be met by suitable variation in character and consistency. Among the subjects treated in this catalogue, together with the kind of oil suitable for the purpose, are compound engine lubrication, superheated steam, lubrication for ice machine cylinders, steam turbines, air compressors and air compressor valves, gas engine cylinders, dynamo and machine oils, engine oils, electric dynamo oils, and marine engine oil. This latter is made to meet the conditions peculiar to marine lubrication, especially the demand for an oil reliable at all times, which has led marine engineers in the past to depend largely upon lard oil. The catalogue states that Harris marine engine oil feeds regularly and will not thicken under the influence of weather.

Marine engines are described and illustrated in catalogue No. 10 issued by the H. A. Heinel Co., Wilmington, Del. The catalogue states that "in reliability no engine has a better record than the Heinel. The design based on a long and thorough experience in gas and gasoline engines has been carefully perfected. Nothing but the best of material goes into the engine and on this only skilled labor is employed. Each is subject to rigid inspection from start to the finish, no engine leaving the shop until it has been carefully tested and found satisfactory, which protects not only the purchaser against the annoying difficulties so often encountered with a new gasoline engine, but also our own reputation. No reliable gasoline engine manufacturer can reasonably claim that his engine will operate continuously without attention. The statement is often made, but it is too absurd to need refuting. There is no prime mover known to-day, either reciprocating or rotary, that will give satisfaction without some attention. To obtain the best results from a gasoline engine, as with any other type, it must have intelligent care. The Heinel engine requires as little attention as any gasoline engine on the market to-day and when given the care and attention that an engine should have, it will maintain the high efficiency it has when it leaves the shop and it will be found that the repair item is so small as to be practically negligible. While we make a specialty of what might be called a standard engine, in which strength and long life are the first essentials, we are prepared to execute promptly orders for special high speed, light weight engines."

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When writing to advertisers please refer to International Marine Engineering.

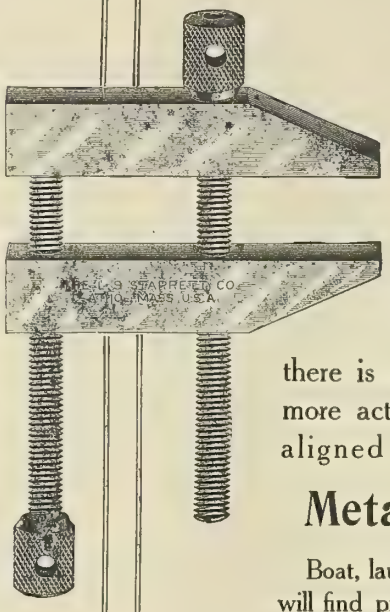
Two steam specialties which are now handled by the National Pipe and Hose Coupler Company, Penobscot Building, Detroit, Mich., are Murray's automatic boiler feed regulator and Murray's steam traps. Circulars describing these devices can be had on application to the company.

Crane Company, Chicago, Ill., has issued a large number of advance circulars which every engineer should send for. These circulars deal with steam and oil separators, automatic exhaust relief valves, flanged pipe joints, back pressure valves, combination back pressure and exhaust relief valves, renewable spring disk brass valves, brackets, hangers, supports, rolls, anchors for supporting steam and hydraulic pipe lines, non-return and direct return steam traps, pipe bends, sediment traps, etc.

The D. T. Williams Valve Company, 904 to 910 Broadway, Cincinnati, Ohio, has just issued a new edition of a catalogue to describe the several auxiliaries which this company manufactures. Several pages of description, containing a dozen or more excellent engravings, give a great deal of detail regarding the Cookson steam trap. Other specialties are the Cookson standard vertical steam separator, the Cookson horizontal steam or oil separator, the Cookson automatic separator, trap and separator combined, and the Cookson receiver separator; also the Cookson pipe separator.

Reversible gas engines varying in size from 1½ horsepower up to 15 or more horsepower are unusually well-illustrated and described in the 1906 catalogue now being distributed by the Termaat & Monahan Company, Oshkosh, Wis. The catalogue is neatly printed in two or more colors and contains quite a little information outside of mere descriptive matter, including instructions as to handling this particular type of engine and especial features in the way of vaporizers, mufflers, etc. There is also a statement showing the advantages of two-cycle engines as well as regarding three-port engines. This company also gives some information regarding the propeller wheels which it manufactures together with considerable other data which will be valuable to every reader interested in gas engines.

Washington's Farewell to his Generals, a reproduction from the well known painting by A. C. Gow, handsomely photo-engraved by the Berlin Photograph Company, is the larger part of an attractive calendar sent out by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, manufacturers of staybolt iron and steel bars, both hollow and solid. Each officer in the group is supposed to be painted from an extant picture and on a separate sheet is a key naming each. The following explanation accompanies the calendar: "At the close of the Revolutionary War, Washington gave a farewell dinner at Fraunces' Tavern in New York to the officers who had fought under him during the seven years of hardship and stress. As he stood among them to say good-bye in a voice choked with emotion he expressed his gratitude to them all, and wishing that their 'later days might be as prosperous and happy as their former ones were glorious and honorable,' asked each of them to come and take him by the hand. General Knox approached him first. With a sudden impulse, Washington drew him close and kissed him, and not a soldier among them all went away without an embrace. After the parting they followed him in silence to Whitehall Ferry where he took ship for Annapolis to resign his commission. The artist has chosen the moment of departure—the generals are gathered on the quay, and Washington clasps General Knox by the hand, and turns to go down the steps."



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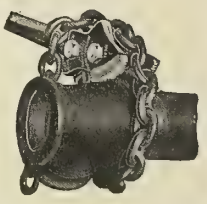

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For all classes of vessel uses and for either metal or wood surfaces.
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Lieut. Dinger, U. S. N., said: Flake graphite is not affected, chemically or physically, by any temperature encountered in a cylinder—pumps run better with graphite and [illegible] le kerosene than with oil.

His complete article is given in Booklet 75-C. On your request we'll send it and free test samples of Dixon's Graphite.

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The gas engines manufactured by the Lamb Boat and Engine Company, Clinton, Ia., have a very handsome catalogue devoted to them which the company is now issuing. There are over forty pages with an average of more than one illustration to a page, including two cycle engines from 1½ H. P. up and four cycle engines of almost any size. The various parts of the engine are elaborately illustrated and described so that the reader may comprehend fully the design and construction. There is also a good deal of information regarding pumps, propellers, ignition, and manner of installing engine in the boats. Any of our readers at all interested in the subject of launches and gas engines should send for a copy of this catalogue.

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A free copy of a booklet entitled "Reece Screw Plates" will be sent to every reader of International Marine Engineering who writes for one to the E. F. Reece Company, Greenfield, Mass. The booklet is made up in imitation of a screw plate box showing the grain of the wood, etc. The contents of the booklet explains the style of construction of the Reece stocks, taps and dies, and contains several records of them as well as the price list.

Users of centrifugal pumps should send for a copy of Bulletin No. 96 which is distributed by the American Well Works, Aurora, Ill. It comprises twenty-four pages and is devoted to a complete description of the many types of pumps which this company manufactures and many illustrations accompany the text. Among other types of pumps made are those for pumping sand, etc. Brief reference is also made to the gas and steam engine and boilers which this company manufactures to use in connection with pumping outfits when used for mining, irrigating or other purposes.

The Ideal pump governor is described in a pamphlet issued by the Ideal Pump Governor Company, 15 Whitehall street, New York City. The catalogue states that this is the only pump governor on the market using oil in water pressure cylinder. The piston and water pressure cylinder is protected from corrosion and sticking fast when the pump on which it is installed is pumping salt water, or other liquids that leave a deposit. The body of oil in the pipe and cylinder, floating on top of the water or other liquids being pumped, follows the piston in both its upward and downward strokes, lubricating and protecting the wearing surface of cylinder walls and piston from liability to corrode or stick fast. The greatest fault heretofore with automatic pump governors has been that they corrode and stick when most needed. This governor is adapted to all kinds of pumps.

Pneumatic tools for punching, riveting and shearing are described and illustrated in catalogue C issued by F. F. Slocomb Company, Wilmington, Del. Regarding the "Caskey," the catalogue states: "This punch has been on the market five years and will effect a great modification of methods in use in this department of work. Before this punch was placed on the market, it was subjected to a series of severe tests covering a period of eighteen months. During this time the first machine constructed punched ninety percent of the holes in two torpedo boat destroyers. A large number of these machines have been sold and are in constant use in ship yards, railroads, and boiler shops all over the country. We believe that the 'Caskey' is the pioneer air punch and that it is the only practical machine of its class on the market. With obvious modifications, it has been found equally adapted for riveting, shearing and for other purposes, such as pipe bending, pressing wheels, pins, etc., or any other duty in which a high power is required for a short distance at each stroke. When used for riveting, it embodies other pneumatic hydro-pneumatic or hydraulic compression advantages of great importance as compared with any riveter."

"Superior" gasoline engines are described and illustrated in a booklet issued by the Lake Shore Engine Works, Marquette, Mich. The catalogue states: "Realizing the great demand for light, high speed motors, for use in the modern fast pleasure boats, we have placed on the market the 'New Superior' Motor, an engine fulfilling these requirements. In placing this engine on the market, we stated that its development was the result of long practice and a thorough study of the requirements of the service for which it was recommended. The success attained during the past season has fully justified these statements, and we have found but few details of construction that could be improved upon. These improvements have been incorporated in this season's motors, and we are now confident that we have the best looking as well as the best acting and most powerful two-cycle motor on the market. Our material and workmanship will continue to be, as has always been our practice, of the best. Our success in the past in the construction of the two-cycle type of motor, and our many enthusiastic customers, give us a prestige of which we are justly proud, and which we will exert our best endeavors to maintain. Our engine is manufactured, not built, and its parts are made to gauge and template, being interchangeable. We continue to maintain that the two-cycle type of engine is unquestionably the most satisfactory marine engine for use in small power; it is the simplest; it is the lightest; it is the best balanced; it has few wearing parts, and is positive and powerful. Being the simplest, it goes without saying that it is the easiest to run; having few wearing parts, it has but little lost motion, and therefore costs but little to maintain."

Engineers interested in the subject of graphite for lubrication, should be asked to be put on the free mailing list of *Graphite*, published by the Joseph Dixon Crucible Company, Jersey City, N. J.

The thirty-second edition of the general catalogue issued by Keuffel & Esser Company, manufacturers and importers of drawing materials and surveying instruments, 127 Fulton street, New York City, is a very complete and fully illustrated volume of 546 pages, and should be in the drafting room of every ship yard engine builder and boiler shop. There is scarcely a material or instrument in use in drafting rooms not listed in this catalogue. Drawing papers, blue printing apparatus of all kinds, drawing instruments of every description, instruments of precision, scales, rules, curves, drawing boards, chests of drawers, tables, paper cutters and weights, drawing inks and brushes, slide rules, calculators, planimeters of various styles, levels, metallic tapes, and magnifying glasses, are among the many articles described and illustrated. The Keuffel & Esser Company, besides this general catalogue, publishes separately a catalogue of nautical instruments, and several trade price lists.

"High Vacuum" is the subject of Bulletin No. 8 issued by the C. H. Wheeler Manufacturing Company, Philadelphia, Pa. A novel feature of this catalogue is the insertion of sixteen blue print reproductions showing in detail Wheeler-Mullan high vacuum apparatus and condensers. This bulletin states that an important feature of a modern steam power plant is the condensing apparatus, upon the efficiency of which depends largely the efficiency of the plant. Without a reliable condenser and air pump, the maintenance of a constant high vacuum is impossible. Regarding the Wheeler surface condenser, it is stated that the arrangement of the water chambers provides three returns of the circulating water, thereby keeping the water in contact with the exhaust steam until the highest efficient temperature has been reached, or practically the same as that of the water of condensation discharged from the condenser through out the air pump. It first enters the upper tubes with final discharge from the lower section, permitting rapid circulation and the tubes to be filled with water at all times. With this system less water is required for condensation, and at the same time the water of condensation leaves the condenser and air pump within a few degrees of the temperature due to the vacuum.

"A Few Physical and Service Tests of Falls Hollow and Solid Staybolt Iron and Other Interesting Information Indicating the Superiority of Our Product," is the title of a pamphlet issued by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio. The pamphlet states: "We manufacture both hollow and solid staybolt iron bars of the same high grade double refined charcoal iron. The raw material is imported Swedish blooms, blended with native high grade charcoal iron, which combination, together with the thorough working to which it is subjected by our process, gives a product unsurpassed and proportionately balanced to meet the continuous strains and reverses to which staybolts are subject in a modern high pressure locomotive or marine boiler. It possesses great tenacity and toughness of fibre, and is celebrated for its solidity, tensile strength, ductility, elasticity, and uniformity of quality. We make a specialty of the manufacture of staybolt iron and know the requirements in these days of high pressure locomotive and marine boilers. Falls hollow bars are rolled inside as well as outside from solid material by an improved process which prevents any possibility of defective welds. The skelp, in sections from 2 to 3 feet long, 3 to 4 inches outside diameter, with an inside diameter of 1 to 1½ inches, is rolled (and elongated by a series of welding heats over mandrills varying in sizes $\frac{1}{16}$ of an inch) into bars of various lengths, from 8 to 12 feet long, and of an outside diameter required from ⅞ to 2¼ inches and inside diameter from ⅛ to ⅞ inches, dependent on the outside diameter. We recommend bars for Staybolt purposes, with ⅛-inch (and not over $\frac{3}{16}$-inch) hole, as the smaller the hole the stronger the bar, the small hole also being best for the admission of the proper amount of air."

When the ice goes out of the harbors and the spring breezes begin to make the ripples dance, the yachtsman overhauls his yacht—Paint it with OXIDE OF ZINC paint, the kind that keeps fresh and clean through the entire season.

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We do not grind zinc in oil. A list of manufacturers of high-grade zinc white paints will be furnished on application.

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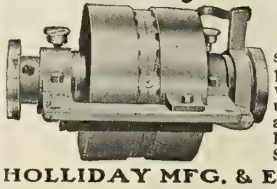
For Marine Engines



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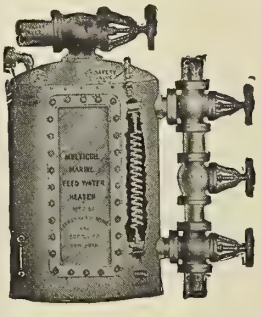

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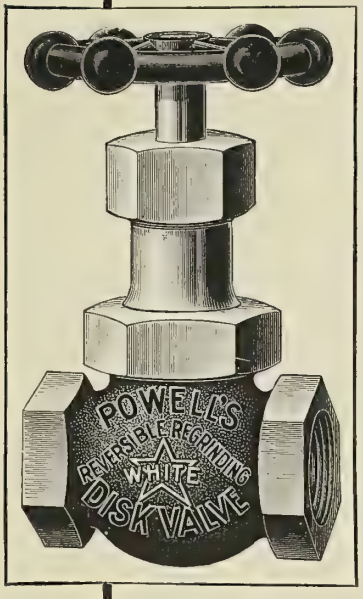

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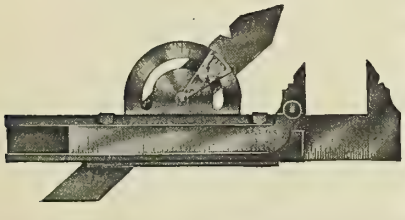
Motor-boats are described in an illustrated booklet issued by the Matthews Boat Company, Bascom, Ohio. This company makes pleasure craft, gasoline, electric and steam power; and will furnish, so the catalogue states, any reputable make of gasoline motor desired.

Users of drills should send for a copy of special catalogue No. 52 issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., which describes and contains many illustrations of the air-cooled Duntley electric drills. The wide range of work of these drills and their adaptability to a large number of uses is made very plain in the text.

Electric hoisting machinery is the subject of illustrated folders issued by the Sprague Electric Company, 527 West 34th street, New York City. The company states "if you have occasion to hoist or transfer material in packages weighing more than half a ton, you should look into the merits of electric hoisting machinery and this company, the pioneer manufacturer of electric hoists, wants you to investigate its apparatus."



A new, handy and convenient device for taking measurements in the Wirt-Goethe combination gauge. One is often confronted by almost insurmountable difficulties, when called upon to perform some mechanical work, because he has not handy the right kind of a tool to take measurements. The device here shown performs the work of ten different tools, and is so compact that it is easily carried in the vest pocket. It is made of superior steel, carefully and thoroughly tested as to its accuracy, and is enclosed in a neat leatherette case, with metal trimmings. Readers of International Marine Engineering may secure this tool at a very low price for a limited time only. All that is necessary is to send your name and address and two dollars to Howard S. Moss, Jobbers' Representative, Room 717, Ogden Building, Chicago, U. S. A.

The Koerting two-cycle double-acting gas engine is described and illustrated in a catalogue issued by the De La Vergne Machine Company, foot of East 138th street, New York City.

"Buffalo Pumps" is the subject of 130-page catalogue No. 87 issued by the Buffalo Steam Pump Company, Buffalo, N. Y. Section 1 of this catalogue is devoted to steam and power pumps, and Section 2 to centrifugal and turbine pumps. This is a very complete catalogue describing pumps for almost every conceivable purpose, and should prove of great value to anyone contemplating the purchase of pumps of any kind.

Force feed lubricating pumps, swing joints for bearings, high pressure gauge cocks, and other steam specialties, are described and illustrated in a booklet issued by the Hills-McCanna Company, 128 East Kinzie street, Chicago, Ill. The booklet states that the engineering specialties made by this company are not new and untried devices, but that a large number of them are already on the market and have given great satisfaction.

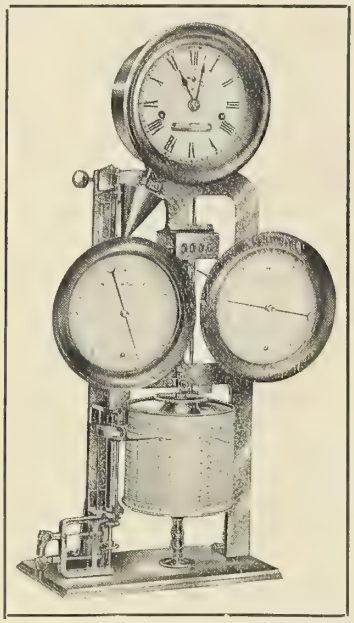
Ryerson's Monthly Journal and Stock List for manufacturers and users of machinery and steam boilers, implement manufacturers, sheet metal workers, structural iron workers, railroads, etc., issued by Joseph T. Ryerson & Son, Ill., is a publication which should be in the hands of every boiler manufacturer and foreman. This publication not only contains price lists of boilermakers' materials, tools and machinery, such as rivets of all kinds, iron and steel sheets, steel bars, boiler tube ferrules, boiler lugs, currugated furnaces, rotary shears, riveters and punches, welding machines, rolls, etc., but always contains many pages of interesting reading matter. The March issue, for instance, contains articles entitled "Air Space in Grates," "Some of the Essentials in Locomotive or Boiler Design," "Repairing Steel Vessels," "Putting a Strainer on the Hydraulic Rivet Machine," Boiler Plant of the Lardner's Point Pumping Station," "Shear Scrap," "A Difference of Opinion about Boiler Explosions," "The Construction of Pressed Steel Wheels," "A Pneumatic Holder On," "Staybolt Diagram," "A Talk on Quality," "Personals" "Trade Notes," and "Publications Received."

Superheated steam is the subject of a booklet issued by the Power Specialty Company, 111 Broadway, New York City, manufacturer of the Foster patent superheater. This catalogue states that "the advantages of superheating have been recognized for over fifty years, but that not until recently has steam engine and steam turbine construction advanced to the point where there are no drawbacks to the use of superheat. The early limitations to superheated steam were largely due to the want of mineral oils for lubrication and metallic packing for joints and stuffing boxes; all of which are now incidental to modern practice. The fact that the temperature of superheated steam is not dependent upon the pressure, makes it possible to obtain a high temperature at a low pressure and adds to the element of safety. Boilers not designed for high pressures, or old boilers which have been weakened by use, may be fitted with superheaters and thus render it serviceable at a moderate cost and without the waste of time and inconvenience incidental to renewal." The Power Specialty Company in addition to manufacturing superheaters, makes hydraulic rams, pump valves, disk fans and blowers, hydraulic machinery, etc.

The Edwards patent air pump for stationary and marine service, is the subject of an illustrated catalogue issued by the Wheeler Condenser & Engineering Company, 126 Liberty street, New York City. This company states that it has made arrangements with the Edwards Air Pump Syndicate, Ltd., of England for the agency and rights to manufacture the Edwards pump. This pump is stated to be the leading air pump of Great Britain and to be generally accepted as the standard throughout Europe. The advantages of this pump are stated to lie in the fact that there are no foot or bucket valves; that very few separate parts are required; that all valves are readily accessible; that breakdowns and delays are avoided; that maintenance charges are reduced to a minimum, together with increased efficiency and great reliability. The Edwards air pump, the catalogue states, will give maximum results and efficiency at minimum operating cost arranged either single, double or triplex; steam, electric or belt-driven; slow or high speed, and it is said to be especially suitable for marine stationary plants in connection with surface evaporative or jet condensers. The catalogue fully illustrates and concisely describes the action of the Edwards pump, and any engineer interested in the subject should certainly send for a copy of the catalogue.

YOU do not have to guess at the speed of your vessel if equipped with the

Nicholson Log



The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance traveled is correctly shown on a counter. Guaranteed to register within 2%. No expense to operate if not abused. Wind the clock once a day and it will do its work automatically.

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LARGE PNEUMATIC TOOL ORDER. The American Car and Foundry Company has purchased for its works at Manchester, England, "Boyer" hammers and drills, from the Consolidated Pneumatic Tool Company, London, which is a foreign branch of the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill.

THE INGERSOLL-RAND COMPANY, 11 Broadway, New York City, has secured exclusive control of the product of the Imperial Pneumatic Tool Company, Athens, Pa. The Imperial tools are well known and include pneumatic hammers, drills, riveters, reamers, hoists and plug drills. The Ingersoll-Rand Company also manufactures the Haeseler pneumatic tools.

R. F. PURDY AND C. H. COLLISON have formed a partnership under the name of Purdy and Collison to build wooden and composite yachts and small boats of every description. Special attention will be given to repairing and alterations of all kinds. The yard, works and office are at the foot of Fulton street, City Island, N. Y. The firm has two marine railways with a capacity of 300 tons.

BUSINESS NOTES.

UP-TO-DATE ENGINEERS must of necessity be familiar with the use of the indicator. Recognizing this fact, and also the demand for a course of instruction in the use of the device, the Indicator Instruction Company, Scranton, Pa., has established a correspondence school in indicator instruction. Every pupil receives an indicator free of all further expense and it becomes his permanent property. Full particulars may be obtained by addressing the Indicator Instruction Company, Scranton, Pa., and mentioning INTERNATIONAL MARINE ENGINEERING.

INCREASE IN CAPITAL. The capital of the Standard Roller Bearing Company, Philadelphia, Pa., has been increased from $2,000,000 to $3,500,000. This increase has been required to provide for an enlargement in the factory and equipment. A four-story factory 150 x 200 feet will be erected immediately for the manufacture of annular ball bearings, on which this Company holds basic patents. During the past year, the Standard Roller Bearing Company has equipped with machinery a four-story building 95 x 200 feet, and has also built and equipped an iron foundry 70 x 150 feet, two stories in height; a hardening and tempering building 70 x 150 feet, and a crucible steel casting plant, 60 x 100 feet. With the new building which will be erected immediately, the Company will employ over 1,000 hands in the manufacture of steel balls, ball bearings, roller bearing automobile axles, and annular ball bearings.

THERE IS NOTHING AS CONVINCING as one's own experience, and engineers who have not yet become acquainted with the merits of "Albany Grease" will find it advisable to make a trial of this celebrated lubricant, say the manufacturers, Adam Cook's Sons, 313 West street, New York. City This firm recently received a letter from the engineer of the Boulder Reduction Company, Jamestown, Colo., telling of his experience with the Albany Grease on centrifugal pumps. He writes: "The results of the trial of the small tins you sent were far above our expectations. I wish to state that I had tried every grease and lubricant I could obtain in Denver in those Centrifugal pumps, except Albany Grease, and simply could not keep them from getting hot. We have now been using Albany Grease, Nos. 2 & 3, on the two pumps for a month or more and have been able to cut off the ¼-inch stream of water we had playing on the bearings to keep them cool."

THE DOUBLE TAPERED DIES made by the Armstrong Manufacturing Company, Bridgeport, Conn., embodies, so the manufacturer states, an original feature in that the threads at the entrance of the die are given a greater tape than the standard. "This forms a natural and easy lead for the dies, allowing them to start on the pipe with the least possible pressure and without the use of the lead-screw. By reason of this double taper it is not necessary to file off the swelling or burr often formed by the cutting tool on the end of a piece of pipe. The advantages of the double taper may be illustrated by the fact that it is an easy matter for one man alone to start the thread on a 2-inch or even larger pipe without resorting to the lead screw. Anyone who is not familiar with the Armstrong stocks and dies. pipe cutting and threading machines and pipe working tools, will be furnished with a complete catalogue upon request to the Armstrong Mfg. Co., Bridgeport, Conn., by mentioning INTERNATIONAL MARINE ENGINEERING.

CRUISING STEAMER FOR SALE AT HALF COST

70x12 hull. 21 feet over all. Independent wheels. Two engines on each wheel. 48 tons gross. Allowed 160 pounds steam and 73 passengers. Complete equipment; in good condition.

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"How to Oil an Engine," a treatise published by W. W. Nugent & Company, 29 West Randolph street, Chicago, Ill., together with a large new catalogue of oiling devices, will be sent free to all applicants who mention INTERNATIONAL MARINE ENGINEERING.

The Monthly Stock List of the Roberts Safety Water Tube Boiler Company, 39 Cortlandt street, New York City, will be forwarded upon application to anyone mentioning INTERNATIONAL MARINE ENGINEERING. This stock list contains many articles of interest to users and designers of water tube boilers. In a recent issue, for instance, is an article entitled "Water Tube Boiler Designing as a Science." There are also numerous illustrations of vessels equipped with the Roberts boilers, and a number of testimonial letters.

"Ship's lamps, fog horns and other marine specialties are fully illustrated in a catalogue which is being distributed by Messrs. A. W. Sanderson & Company, 206 Barford street, Birmingham, England. The specialties include ships' side lights, ships' masthead and stern lamps, ships' anchor or riding lights, steam launch and fishing boat signal lamps, globe lamps, engine room lamps, boat and bunker lamps, saloon and cabin lamps, fog horns of several types together with compasses, barometers, etc. A free copy will be sent to any enquirer who will mention this magazine.

"Thor pneumatic tools" are profusely illustrated and concisely described in Circular No. 6 distributed by the Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill. "The main novelty and greatest advantage of the *Thor* long stroke riveting hammer lies in its one-piece construction. The handle, barrel and valve block are all in one solid piece of steel forging. All other makes of riveting hammers are made in three main parts—barrel, valve block and handle—which construction requires the use of couplings, clamps, keys, lock nuts, and other complicated mechanism, which frequently become loose and cause considerable delay, annoyance and expense by the necessity of their having to be tightened. The main valve of the *Thor* Long Stroke hammer lies parallel with the main bore, but is not directly operated with the air in the downward stroke. When the piston returns, it opens what is termed the auxiliary valve, the office of which is to admit a slight amount of air, which lightly starts the piston downward, and also helps to supply air for the power stroke. After short travel in the downward direction, the main valve opens and admits a great volume of air direct and very close to the piston. This hammer, therefore, from a gentle start gets an extremely forceful and quick acting blow and quicker return, with practically no vibration. On account of its one-piece construction, the hammer is lighter and shorter than any other make. There is no part of the hammer that can possibly work loose from vibration. The *Thor* chipping and calking hammers are equipped with duplex valves, which on account of their extreme lightness, and the double action, throw open the inlet quicker and more direct and leave a larger exhaust area than is possible with hammers equipped with the single valve. The air enters the hammer through inlet below handle, being controlled by the trigger. It enters the chamber at the rear of the cylinder and presses apart the two valves in this chamber, allowing the air to enter behind the piston. The piston is driven forward until the port near the end of the stroke is uncovered. This admits air to the outer sides of the valves, and as the area of the outer sides is larger than that of the inner, the excess pressure causes the valves to close. Air is then admitted to the opposite side of the piston, driving it back until another set of ports is uncovered, releasing the outer end, and the valves will again be forced open. These hammers have no delicate mechanism, are very easily handled and operated, and do very effective work."

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When writing to advertisers please refer to INTERNATIONAL MARINE ENGINEERING.

A handsomely illustrated catalogue of launches from 18 to 25 feet in length, is issued by the Madison Boat Company, Madison, Wis., and will be mailed to any address in the United States or Canada upon receipt of six cents in stamps, or to foreign countries for ten cents in stamps to cover postage. The various styles of boats made by this company are concisely described and profusely illustrated and a price list is attached. There are also testimonial letters.

"Link Motions, Valves and Valve Setting" is the title of a little book, which is sent complimentary to all enquirers who mention INTERNATIONAL MARINE ENGINEERING, by H. B. Underwood & Co., 1025 Hamilton street, Philadelphia, Pa. The book is bound in flexible cloth and comprises ninety pages, covering the following subjects: "Locomotive Link Motions"; "Valve Movements"; "Setting Slide Valve"; "Analysis by Diagrams"; "Modern Practice"; "Slip of Block"; "Slide Valves"; "Piston Valves"; "Setting Piston Valves", and "Other Valve Gears." The book is written by the well-known author, Mr. Fred. H. Colvin.

"Automatic Refrigeration with Electric Power" is the title of a pamphlet issued by the Automatic Refrigerating Company, 22 Thames street, New York City. This pamphlet states that the automatic system is mechanical and entirely automatic. Any desired low temperature even to zero may be uniformly maintained in a well insulated refrigerating compartment. The machine and all automatic devices are controlled and regulated solely by the temperature required in the refrigerator, as indicated by thermostat which controls the operation of the motor driven compressor; the other automatic types being regulated by the compressor in operation. The machine, therefore, produces refrigeration only when necessary. While idle no power is used. No engineer is required to regulate its operation. The cost is from one-third to two-thirds less than that of ice. Electric power is preferred because of the simplicity of its installation and because electric motors are so easily controlled, especially when used in small sizes. The automatic system insures the successful use of small independent refrigerating plants as the cost of engineers' services is eliminated.

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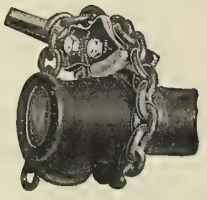

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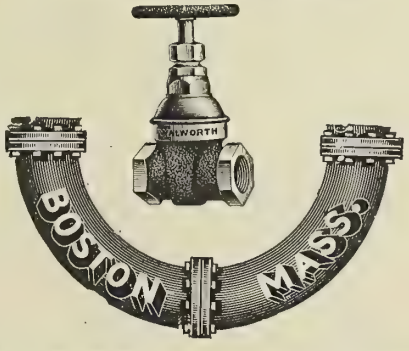

Automatic suction gas producers are described in a catalogue issued by the Smith Gas Power Company, Lexington, Ohio. All persons interested in the subject of producer gas should send for a copy.

A new test of Dixon's flake graphite made by Professor Goss of Purdue University, demonstrating its value as a lubricant and its mechanical affinity for metal surfaces, is contained in the April issue of *Graphite* issued by Joseph Dixon Crucible Company, Jersey City, N. J. A free copy containing this article will be forwarded to all readers who mention INTERNATIONAL MARINE ENGINEERING.

Valuable information regarding valves, fittings, and steam specialties, is contained in a series of illustrated pamphlets issued by Crane Company, Chicago, Ill., describing the design and explaining the application of this company's line of steam specialties including drip pockets, steam and oil separators, automatic exhaust relief valves, combination back pressure and exhaust relief valves, automatic and emergency valves, expansion joints, sediment traps, and Cranetilt non-return and direct return steam traps. Any or all of these pamphlets will be mailed free upon request.

Marine gasoline engines are described and illustrated in a catalogue issued by the Rathbun-Lacy Company, 608 Segur avenue, Toledo, Ohio. The catalogue states that the latest and most improved devices in modern two-stroke practice are incorporated in these engines. There are few adjustments, and these are easily made. Complete descriptions are given of the general design and material of the air pumps, cut off couplings, valve gears, ignition, crank shaft bearing, lubrication, thrust bearings, water circulation, balance, propeller wheels, air pumps, control, and other features of the Rathbun-Lacy Company.

"The Book of Boats" is the title of a handsome cloth bound book of 122 pages issued by the Truscott Boat Manufacturing Company, St. Joseph, Mich. This work, as the title page states, is a "brief story of some of the queer prototypes of the modern launch," and deals with rafts of various natures, dugouts of a number of savage tribes, the bark boats and skin boats of the natives of Australia, South America, North America and Asia; the built-up boats of the Malays, Japanese, Egyptians, etc., and the modern types of boats. It is a very interesting little book, and will be forwarded post paid upon receipt of fifty cents.

Wheeler condensers and specialties are described and illustrated in a 106-page catalogue issued by the Wheeler Condenser and Engineering Company, 126 Liberty street, New York City. Regarding this company's condensers, the catalogue states that "when it is remembered that only about twenty percent of the steam generated in a furnace performs work in the engine, and that eighty percent is useless because it is in a form that cannot be converted into mechanical power, the question of proper auxiliaries to reduce this waste becomes one of first importance. As this unused heat costs just so much coal our problem becomes first, to reduce the amount of heat rejected by the engine and second, to return as much of it as possible to the boiler. The practical means employed to reach these ends is the condenser, whereby the difference in pressures between which the engine operates is increased, correspondingly reducing the amount of wasted heat; and the feed water heater, by virtue of which much of the unused heat is returned to the boiler in the feed water."

Buckeye heaters, blow torches, oil rivet forges, sand blast machines, and paint sprayers are described and fully illustrated in a 54-page catalogue issued by Walter Macleod and Company, 213 East Pearl street, Cincinnati, Ohio. Regarding the Buckeye heater, the catalogue states that it will save its cost in a few weeks in any repair, jobbing or machine works, and the catalogue goes on to say: "Give up building fires and applying heat to parts you wish to avoid, and use the Buckeye and apply it to exact place required." The catalogue states that since the adoption of pneumatic riveting, the necessity for a heater that will keep pace with the riveters is recognized, and that after seven years experimenting, it has brought out a practical and efficient forge for the purpose, using for fuel almost any description of kerosene oil, either crude or refined. This company's sand blast outfits are said to be rapidly coming into use for the purpose of cleaning paint from boilers, hulls of boats, and for removing rust from all steel and iron work before repainting. A free copy of this catalogue will be forwarded to anyone mentioning INTERNATIONAL MARINE ENGINEERING.

A free copy of "Valve World" issued by Crane Company, Chicago, Ill., will be sent to any reader mentioning International Marine Engineering. In every number are articles of interest to users of valves and steam uses in general.

"A Captain of Industry, a story of David Maydole, Inventor of the Adz-Eye Hammer," is the title of a booklet and catalogue issued by the David Maydole Hammer Company, Norwich, N. Y. There are several hundred different kinds of hammers described in the catalogue, so that there would appear to be something to reach the wants of any hammer user.

Pipe repairs and steam specialties are the subject of an illustrated catalogue issued by James McCrea & Company, 67 West Washington street, Chicago, Ill. Regarding this company's climax steam joint clamp, the catalogue states that it has been on the market for nearly nine years, and has demonstrated that it is more economical to use this clamp which can be attached in a few minutes with full pressure on the pipes, than to shut down the plant and go to the expense of taking down pipes and making up new joints, with always a prospect of one or more leaks to take care of when the job is done.

Steam steering engines, tiller steering gears, electric steering gears, telemotors, hoisting engines, locomotive cranes, evaporators, distillers, condensers, etc., are described and illustrated in a catalogue of 116 pages issued by Williamson Brothers Company, Aramingo avenue and Cumberland street, Philadelphia, Pa. In addition to profusely illustrating and concisely describing the products of the company, there are in the back of the catalogue several pages of useful tables, such as rules for the management and care of steam boilers, tables of tensile strength, tables of pitch, breaking, proof and working strains. etc.

"The Preservation of Ships," a publication issued by The "Long Arm" System Co., Cleveland, O., represents a distinct departure in trade literature. The company manufactures electrically operated doors and hatch-plates for ships, its system being in use on all the new vessels of the navy. Instead of the customary catalogue, the company now puts out a series of "short talks" on the principles of safety at sea, and the conditions under which safety can best be procured, with special reference, of course, to the overwhelmingly important part of watertight bulkheads and their doors in producing the unsinkable ship.

Every machinist and draftsman should have a copy of the 1906 edition of the general catalogue issued by the Brown & Sharpe Manufacturing Company, Providence, R. I. This is a work of 514 pages, and the large number of tables it contains, together with other general information makes it very valuable as a book of reference. This catalogue will be mailed upon application to those metioning International Marine Engineering. This company manufactures milling machines, grinding machines, automatic gear cutting machines, screw machines, cutters, accurate test tools and machinists' tools of all kinds. The catalogue is profusely illustrated and minutely indexed.

A free copy of the fifth edition of the "Smooth-On Instruction Book," published by the Smooth-On Manufucturing Company, Jersey City, N. J., will be sent free upon request to any engineer giving his name and the name of his employer. The introduction to this book states that the great value of Smooth-On is because of its peculiar chemical properties of metallizing, and of expanding when metallizing, and that it can be prepared to act quickly or slowly according to the requirements. These properties make Smooth-On a valuable substance in the making of chemical iron cements. The different Smooth-On cements are explained in the book, and a careful study of them will prove interesting and profitable. The many illustrations in the book are made from photographs of actual subjects, and show some of the ways in which Smooth-On iron cements have been used, and the results obtained. It costs nothing but a postal card to get the book.

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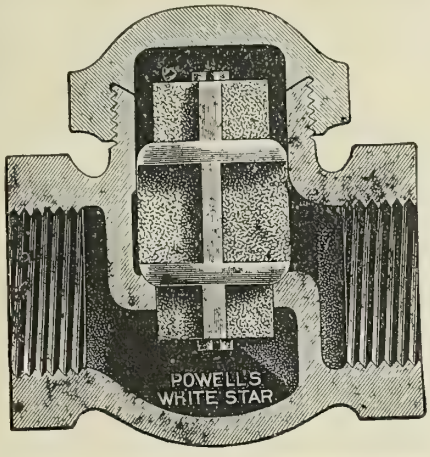

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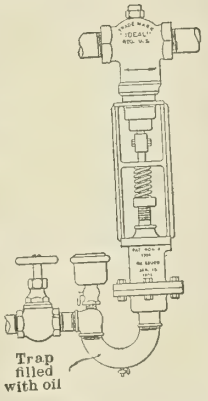

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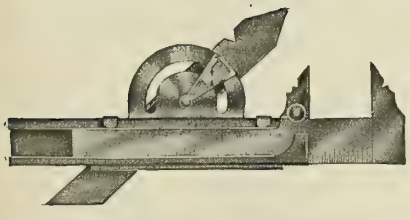

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A free copy of the *Progress Reporter*, issued by the Niles-Bement-Pond Company, 111 Broadway, New York City, will be sent to every reader who mentions INTERNATIONAL MARINE ENGINEERING. The object of the publication is to keep the employees of the company and the public generally, informed regarding new machines and types which are constantly being brought out. The *Progress Reporter* is a handsomely illustrated pamphlet of 32 pages, and should prove interesting to all users of machine tools.

The State steam engineering school, established eight years ago by James Coyne in Boston, Mass., for the purpose of assisting the engineers and firemen of Massachusetts to comply with the requirements of the license law, is described and illustrated in a pamphlet Mr. Coyne is distributing. This work was undertaken by Mr. Coyne on account of the fact that the majority of applicants for licenses failed to pass their examinations, thus making evident the need for such a school.

"Circulation in Boilers" is the title of a 12-page folder distributed by the Copeland Gravity Circulator Company, 39 Cortlandt street, New York City. The subjects discussed are: Circulation of Water in Steam Boilers, Automatic Circulation, Artificial Circulation, Scotch Boilers, One Chronic Fault, The Bottom Cause of It, and the Remedy. Copies of this circular can be had free by mentioning INTERNATIONAL MARINE ENGINEERING, and addressing the company.

A monthly stock list of boilers, engines, dynamos, motors and machinery is issued by Wickes Brothers, Saginaw, Mich., and will be sent free upon application to all readers of INTERNATIONAL MARINE ENGINEERING. Boilers, engines, steam, gas and gasoline, contractors' materials, condensers, pumps, electrical machinery, exhaust and ventilating fans, blowers and heating apparatus, iron and steel works, machinery, cranes, metal working machinery, belting, forges, tanks, etc., are among the goods listed.

Every one of our readers interested in the subject of steam boilers should send for a copy of a catalogue issued by H. Bloomsburg & Company, 425 North Carey street, Baltimore, Md., describing the equilibrium circular and steam heating attachment for heating and circulating the water in steam boilers. The catalogue contains excellent engravings of many well known vessels upon which these devices are installed together with much valuable information on the subject of feed water and its circulation in steam boilers.

Sand blast machinery of the type manufactured by the J. W. Paxson Company, 1021 North Delaware avenue, Philadelphia, Pa., is illustrated and described in an 8-page folder. The sand blast is one of the recent inventions which ought to interest many of our readers because of its extensive use in cleaning castings as well as cleaning steel plates which are badly corroded. A recent report gives a new use of the sand blast in the cleaning of crown bars and crown sheets.

Landis bolt cutters and nut tapping machinery are described and illustrated in a pamphlet issued by the Landis Machine Company, Waynesboro, Pa. The pamphlet states that the Landis bolt cutter is the result of years of study on the subject caused by the trouble and expense of keeping the ordinary hobbed die machine in working order. The first machine of this type has now been used a number of years, and the results obtained from the same, and the economy of the die have caused it to be placed on the market. After a number of years of hard service, the original machine of this type still gives results that cannot be obtained from the hobbed die, and has proved that it is the most economical threading tool that has ever been offered to the trade.

Bulletin No. 131, entitled *Horizontal Engines,* has just been issued by the B. F. Sturtevant Co., Hyde Park, Mass., in its Engineering Series. It fully illustrates this series of engines, ranging from 20 to 200 H. P. capacity, which has recently been entirely redesigned. All engines are now completely inclosed, provided with watershed partitions and equipped with forced lubrication. Although primarily designed for direct connected driving of Sturtevant generators, these engines are peculiarly adapted to all clases of work where high speed, efficiency and perfect regulation are desired. The positive system of forced lubrication relieves the engineer of anxiety and insures continuous operation with the minimum of care.

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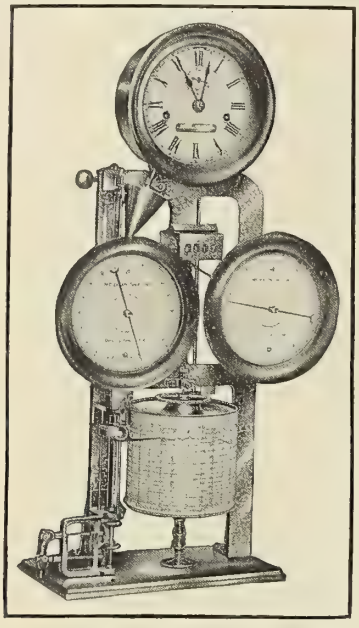

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A TALK ABOUT GREASE as a lubricant. In reply to a query, why animal grease might be regarded as superior to mineral grease for general lubricating purposes we are in receipt of the following communication from Adam Cook's Sons, No 313 West street, New York City. "Albany Grease, for the reason that it is a purely animal grease, free from all destructive acids, will lubricate and preserve the bearings of machinery better than any of the so-called mineral greases on the market to-day, as it has done for nearly forty years. Having comparatively low melting points for the different consistencies, it will more readily melt, and thus lubricate, cool and preserve a bearing which from carelessness, inattention or the improper placing or setting of cups would otherwise burn or cut out and be practically destroyed by the use of mineral greases with high melting points. Take, for instance, a mineral grease with a melting point of 300 degrees (and most of those on the market to-day range in that neighborhood, with some running as high as 600 degrees) and place it in open box bearing caps; the usual result is that the bearing will get hot, almost to the melting point of the grease before it will flow over the bearing and lubricate it. This is getting pretty close to the danger point for babbitted bearings and if the heating be long continued will destroy them. Besides if the bearing should be neglected for a short time and not supplied with grease, a burned out bearing or a fire will be the inevitable result. Under the same circumstances, No. XXX Albany Grease, which is of the hardest consistency made, with the highest melting point, 175 degrees, would melt and flow over the bearing, lubricating and cooling it, on account of its peculiar properties, long before the heat of the bearing had reached the danger point. Mineral greases, to be used with any degree of satisfaction, and by that we mean cool bearings, must be used in compression cups of either the spring or hand type. They cannot be used with good results in spindle cups. On the contrary, Albany Grease will give the best results and the greatest economy when used in spindle cups, and on any speed, and when the simple precautions advised are observed. When used in those cups the bearings are cool, the copper feed wire in the spindle cup only getting warm through its contact with the shaft, and by this means melting only as much grease as is necessary to lubricate the bearing, thus keeping it cool. Mineral greases cannot be used because their melting points are too high. Albany Grease can be used in any style of grease cup on the market to-day with better results than mineral greases, because so much less of it is required to do the same work, keeping the bearings cool at the same time, hence the economy. The moral is plain. Use Albany Grease and obtain the best and most economical results in everything pertaining to the lubrication of machinery."

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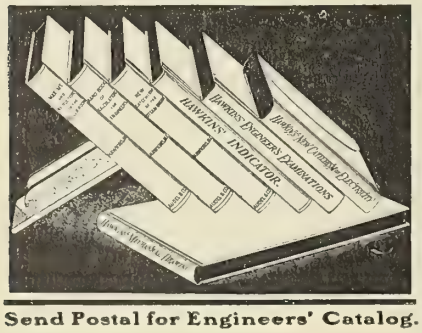

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" 13, John G. Paulding, 1746 Tulip St., Philadelphia, Pa.
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" 17, George S. Collins, 2277 Vine St., Cincinnati, O.
" 18, William Hurst, 715 Walnut St., Cairo, Ill.
" 20, Joe B. Barry, 640 Keel St., Memphis, Tenn.
" 21, J. C. Garrety, 209 Bridge St., Vicksburg, Miss.
" 23, William R. Lewis, 213 Front St., Jeffersonville, Ind.
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" 27, L. C. Schwall, 518 S. Madison Ave., Bay City, Mich.
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" 47, Jared R. Cook, 320 Court St., Sault Ste. Marie, Mich.
" 48, Alfred Hegemer, 322 Sindsley St., Sandusky, O.
" 51, Eli V. Barry, 244 Terrace St., Muskegon, Mich.
" 53, Harry Stone, Box 445, Marine City, Mich.
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" 67, James K. Dole, Sagatuck, Mich.
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" 93, M. E. Davis, 920 E Street, N. W., Washington, D. C.
" 94, John P. Harris, P. O. Box 40, Washington, N. C.
" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, S. T. Powers, 723 Eleanore St., New Orleans, La.
" 100, H. G. Wootten, 1717 Makiki St., Honolulu, H. I.
" 101, Thomas G. Williams, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, 16 Pollock St., Box 225, New Bern, N. C.

TRADE PUBLICATIONS.

Bending machines, hand power brakes, punches and shears, and other sheet metal working machinery are described and illustrated in folders distributed by the J. M. Robinson Manufacturing Company, 3282 Spring Grove avenue, Cincinnati, Ohio.

A free copy of a handsome catalogue fully illustrating and describing the Johns patent punching and shearing machines will be sent to all inquirers who mention INTERNATIONAL MARINE ENGINEERING by Henry Pels & Company, 68 Broad street, New York. The catalogue comprises forty-eight pages and has from one to three or four cuts to almost every page. It is known as catalogue No. 30 and goes into a great deal of detail regarding punching and shearing machinery.

"The Best Way to Prevent Rust" is the title of a very neat paper-bound booklet which is being distributed by the Detroit Graphite Manufacturing Company, Detroit, Mich. It is very neatly printed in colors and in addition to giving much information regarding the subject, it is neatly illustrated with small pictures of several well-known bridges, and a number of buildings of various kinds in which steel is extensively used which has been protected by the use of this company's superior graphite paint. Those of our readers who are at all interested in the subject of paint and the prevention of rust should send for a free copy of this little book.

"The Mechanical Index" is the title of a series of publications issued by the Donnell-Colvin Company, 256 Broadway, New York City. The index prices and series of volumes, giving the names of all the concerns in each field, are given so that it is a complete index for manufacturers, dealers, etc. The volumes are not sold, but are leased for a period of one year and at the end of the year a new and up-to-date volume is exchanged for the old one for a nominal sum. The following is a list of the different sections: Agricultural Machinery, Auto and Motor Boats, Clay, Pottery and Glass, Electrical and Railway, Heating and Ventilation, Metal Working, Power Plants, Printing and Paper, Textile Machinery, and Wood Working.

Compressed Air Pumping Systems is the title of an illustrated booklet issued by the Ingersoll-Rand Company, 11 Broadway, New York City. The introduction states that the economical pumping of water and other fluids is one of the most important engineering problems of the day. "In this as in other industrial fields, compressed air has gained a leading place. As a simple, economical and reliable power for pumping purposes, compressed air cannot be surpassed. The conditions under which pumping is done vary greatly, and this variety calls for a variety of pumping systems." The leading methods of pumping by compressed air are briefly described in these pages. No attempt is made to cover the ground fully, but the subject is treated exhaustively in larger publications which will be sent free upon request.

Carbonic anhydride ice and refrigerating machines are described and illustrated in an 84-page catalogue published by the Kroeschell Brothers Ice Machine Company, 29 Erie street, Chicago, Ill., which makes all parts of the machine in its own factory and guarantees it throughout. Every machine is carefully erected, lined up, and tested under long working pressure before being put on the market. All working parts are interchangeable and may be readily replaced. Among the advantages claimed for this system of refrigeration are lack of odor, safety, cheapness, compactness, lack of harmfulness to storage products coming in contact with it, simplicity of construction and noiseless action. It is claimed to possess the mechanical economy of a compression machine without any of the disadvantages of the ammonia machine.

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When writing to advertisers please refer to INTERNATIONAL MARINE ENGINEERING.

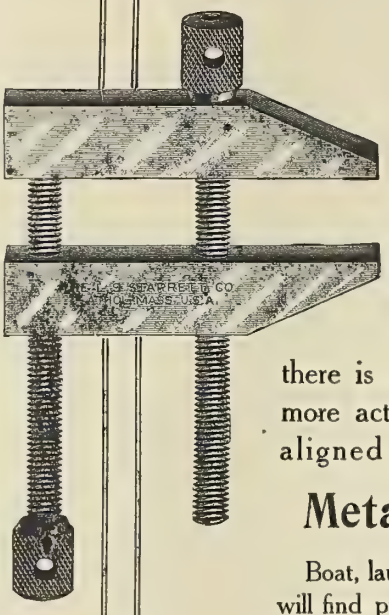
Every user of lubricants should send for a free copy of a catalogue entitled "Petroleum Lubricating Oils" issued by the A. W. Harris Oil Company, Providence, R. I. This company devotes itself exclusively to lubricating oils for all uses and has made a study of the subject so that each kind of oil is adapted especially to its specific use. The several kinds include valve oil, gas engine oil, marine engine oil, dynamo oil, ice machine oil, as well as boiler compound, lubricating compounds, etc. The catalogue is one of the neatest ones in appearance we have seen for a long time.

Corrugated copper gaskets are described in a folder issued by the Taunton-New Bedford Copper Company, New Bedford, Mass. This company's gaskets, so it is stated, may be used in place of rubber or other destructible materials in general use for packing. It consists of thin sheet copper stamped with concentric corrugations. Three to six corrugations are all that are necessary, so that the space within the bolt holes determines the width of the gaskets. Connections made with these gaskets will not blow out, for each corrugation makes the entire circle of the flange, and so long as the contact is kept complete by compression, the joint cannot leak.

P. & F. Corbin, New Britain, Conn., have begun the distribution of their new illustrated catalogue of hardware. Facing the title page is a large engraving of the Corbin factories. An important feature of the book is the comprehensive system of numbering the art hardware for inside trim, the system now in force indicating besides the article number, the style and finish. There are about 1100 pages in all, each 9 x 12 inches, and the book is substantially bound in half leather. For convenience in quickly locating the contents there are several indexes, the numerical index covering 35 pages, with five columns on a page. The cuts used in the catalogue range from full to one-half and one-third size, according to the character of the goods.

Boiler tubes, wrenches of several types, valves, boat builders' and machinists' clamps, malleable iron oilers, rowlocks of several types, packing rings for pumping cylinders, pipe bending tools and many other specialties are illustrated and described in catalogue No. 9 issued by the Mark Manufacturing Company, First National Bank Building, Chicago, Ill. The catalogue is bound in flexible cloth comprising 110 pages, containing many illustrations and considerable amount of descriptive matter together with tables, price lists, and much general information regarding the many specialties. We infer that copies can be had free to readers who mention this magazine.

Marine refrigeration is the subject of a catalogue issued by Kroeschell Brothers Ice Machine Company, 29 Erie street, Chicago, Ill. This company's machines are of the carbonic anhydride type, which the company states is particularly adapted to use on board ship, as it is not necessary to install the machines in a well ventilated room, but they may be set up in the main engine room where they come under the direct eye of the engineer. The machines are stated to take up much less room than compressed air machines. Further advantages of this system, so the catalogue states, are freedom from odor, convenience in operation, compact construction and safety. The steamships *Northland* and *Northwest* of the Northern Steamship Company, and the steamship *Tionesta* of the Anchor Line are equipped with this company's refrigerating system, which won the grand prix at the Paris exposition in 1900.



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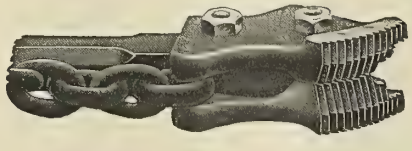

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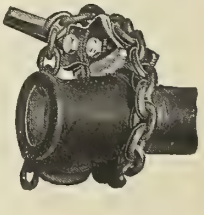

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Feed water heaters and expansion joints are the specialties chiefly illustrated and described in catalogue No. 6 distributed by the Alberger Condenser Company, 95 Liberty street, New York City. The catalogue is a very neat job of printing, and the illustrations are numerous and especially clear. Brief reference is also made to a number of other specialties which this company manufactures.

Steel castings are the subject of an illustrated catalogue issued by the Columbia Engineering Company, Portland, Ore. This company makes castings of low carbon steel, mild steel, high carbon steel, nickel steel, manganese steel, chrome steel, and hammered high carbon steel. At the Lewis and Clark Exposition, Portland, Ore., out of five competitive entries for steel castings, this company was awarded four gold medals and one silver medal.

Ryerson's Monthly Journal and Stock List for manufacturers and users of machinery and steam boilers, steel workers, structural iron workers, railroads, etc., will be sent free to all who are sufficiently interested to write to Joseph T. Ryerson & Son, Chicago, Ill., and mention this magazine. In addition to the stock list feature of this 144-page pamphlet, are many articles of interest to manufacturers, numerous tables of weights and dimensions, and business notes.

Copes' patent feed water regulator has a neatly printed 120-page catalogue devoted to it which is distributed by Messrs. Wilfong & Wiltbank, Mutual Life Building, Philadelphia, Pa. A free copy will be sent to any of our readers who will mention this magazine. The device is designed to maintain a uniform water level in any type of boiler regardless of the load or firing.

Disk grinders, band polishing wheel, disk wheel circles, and sectional steel chucks, are described in an illustrated catalogue issued by Gardner Machine Company, Beloit, Wis. The catalogue asks readers of INTERNATIONAL MARINE ENGINEERING who are interested in the subject of disk grinding to write the company for information or send samples or sketches of proposed work, saying, "Our experience which is unequaled in this line, is at your service."

The Copeland gravity circular is the subject of a folder issued by the Copeland Gravity Circular Company, Newburg, N. Y. This is a type of circulation designed to establish the automatic movement of the water contents of an internal furnace boiler for the purposes of equalizing temperature, preventing incrustation, increasing efficiency, capacity and durability. A complete description of the circulator is given in this folder, and also a record of the average results of numerous tests.

High Pressure Blower is the title of Bulletin No. 1227 issued by the B. F. Sturtevant Co., Hyde Park, Mass. In condensed form it presents the essential features of this type of rotary or so-called positive blower, tabulates the proper sizes required for different capacities of foundry cupolas, gives the principal dimensions of horizontal and vertical types and illustrates methods of driving by direct-connected Sturtevant motors and engines.

Marine gasoline engines are described and illustrated in a catalogue issued by the Mianus Motor Works, Mianus, Conn. This catalogue contains a description of the company's new engine for 1906, and a full list of fittings, supplies and repair parts. The catalogue also has a full printed description of the weight, sizes, net prices, catalogue numbers, etc., and every article is illustrated by a half tone or drawing, so that customers can have a good idea of the articles they are buying.

"**Notes on the Use of Gas Engines** for Marine Propulsion," by Lewis Nixon, Staten Island, New York City, has been published in book form in French and English. The notes deal with the subject of lightness, economy in fuel weight and fuel consumption, water for boilers, space required, arrangements, simplicity of construction and operation, number of men required, coaling, visibility, smoke stacks, getting underway, boiler troubles, reliability, etc., especially as regarding the use of gas engines in men-of-war.

"**Complete Power Plants,** including Steam and Electrical Transmission for Industrial and Manufacturing Products" is the title of bulletin No. 3 issued by the A. D. Granger Company, 95 Liberty street, New York City. The bulletin is published for the purpose of presenting the desirable features and advantages the A. D. Granger Company claims are to be obtained from placing with it all contracts for apparatus entering into the installation of a complete steam or electric plant.

Catalogues wanted. The Ohmen Engine Works, 15th and Utah streets, San Francisco, Calif., whose plant was destroyed by the recent fire, has resumed operation at the above address and states that it is desirous of receiving engineering and supply catalogues.

Readers of International Marine Engineering who will mention this magazine, and write Crane Company, Chicago, Ill., will be put upon the free mailing list of *The Valve World*, a monthly illustrated magazine which always contains many pages of interest to the engineer and steam user.

"The Stories They Tell" is the title of an illustrated pamphlet published by the Racine Boat Manufacturing Company, Muskegon, Mich., describing the launches, canoes, and other types of boats manufactured by this company and containing a number of testimonial letters.

Electric fans are described in a handsome illustrated catalogue published by the Sprague Electric Company, 527 West 34th street, New York City. Anyone desiring fans to make the summer weather less unbearable, should send for a free copy of this catalogue.

The Crosby reducing wheel is described in a four-page folder which is being distributed by the Crosby Steam Gage & Valve Company, 97 Oliver street, Boston, Mass. The use of indicators has now become such a necessary part of the up-to-date engineer's duties that many of the readers of International Marine Engineering will be interested to send for a copy of this folder.

The Yale submarine electric lamp is the subject of a four-page folder, which is being distributed by the Chicago Penumatic Tool Company, Fisher Building, Chicago. The lamp is fully illustrated and described and, as shown in the folder, the device has been adopted by the navies of the leading nations of the world.

Air and Gas Compressors is the title of an illustrated pamphlet issued by the Ingersoll-Rand Company, 11 Broadway, New York City. This pamphlet sketches several of the many classes of Ingersoll-Rand compressors. Full details of each type are embodied in separate pamphlets which will be sent free upon request.

All of our readers who do not receive it should send to the Scully Steel & Iron Company, Halstead & Fulton streets, Chicago, Ill., and be put on the list to receive a copy of the Scully Stock List regularly. The issue for May and June is devoted exclusively to the interests of boiler makers. It comprises 144 pages, and contains a great deal of valuable and instructive information.

Pot furnaces for lead and cyanide hardening, and for smelting soft metals, using oil or gas fuel are described in an illustrated pamphlet issued by the Rockwell Engineering Company, 26 Cortlandt street, New York City. This company has been manufacturing and installing oil burning appliances for seventeen years, and states that the name "Rockwell" is a guarantee.

Bulletin No. 128 entitled "Economizers," has been issued by the B. F. Sturtevant Co., Hyde Park, Mass. This publication briefly outlines the essential features of an economizer, displays the advantages of the Sturtevant type with staggered pipes and metal-to-metal joints, and by means of well selected photographs clearly illustrates the important parts of these machines.

Bradley hammers and forges are described and illustrated in a catalogue issued by C. C. Bradley & Son, Syracuse, N. Y. These hammers are made in helve upright strap, upright helve and compact styles, with heads ranging from 15 to 500 pounds, and capable of forging iron, steel and other metals from 5 inches square down. The catalogue states that the Bradley helve hammer is in a class by itself and that there is no other cushioned helve hammer.

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Launch Hulls Wanted

To be galvanized steel, open cockpit type of launch substantially built on good model lines. Length 37 feet, beam 7 feet, for a working draft of 3 feet. Ample time allowed to build.

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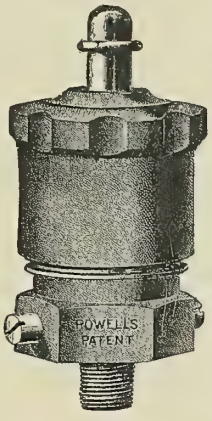

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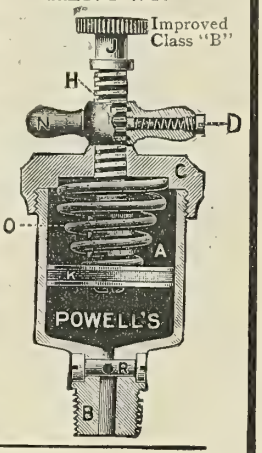

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BUSINESS NOTES.

BUSINESS OPPORTUNITIES. Attention is called to the advertisements on page 8 of this issue of INTERNATIONAL MARINE ENGINEERING, calling for launch hulls, and a manager for a shipyard on the Gulf of Mexico. Live men desiring business should answer these advertisements.

DIXON' MOTOR GRAPHITE is an absolute necessity to any one who has a motor boat, cycle, automobile or gas engine, says the Joseph Dixon Crucible Company, Jersey City, N. J. and 26 Victoria street, London, S. W., England. "There is no lubricant like it. It means more power, more speed, more ease, less worry and less wear. It is so useful in so many ways and places that it will pay you to send for circular and samples. Address Lubricant Deartment."

"AFTER NEARLY FORTY YEARS Albany Grease rightly comes into its own, and takes its indisputable place along side of the registered 'boy on the plank,' made so familiar by Adam Cook's Sons, to every user of a first-class lubricant," say the manufacturers. Under the old trade-mark law, the word "Albany," being a geographical name, could not be registered. The new law passed February 20th, 1905, has changed this, and now affords protection to concerns who have put the name of such cities as Albany, Milwaukee, St. Louis and Manhattan, into the mouth of every man to feed on in his daily conversation. "Every engineer associated the geographical name 'Albany,' with the first lubricating grease ever put on the market, and Albany Grease still remains to him the first in every respect. First, in its economy and cleanliness. First, in its lubricating qualities. First, to help an engineer out if his hot box troubles, and first all along the line in its lasting qualities." Adam Cook's Sons, 313 West Street, New York, the only makers of Albany Grease, by persistent advertising, have made the name "ALBANY" famous, and by furnishing a lubricant of merit, maintain an enviable reputation. The name "Albany" in connection with grease, is now the sole property of Adam Cook's Sons, being duly registered in the United States Patent Office. The certificate was presented to Adam Cook's Sons, under date of February 13th, 1906, by Uncle Sam on May 1st, 1906, and they are to be congratulated on the protection Uncle Sam now affords them.

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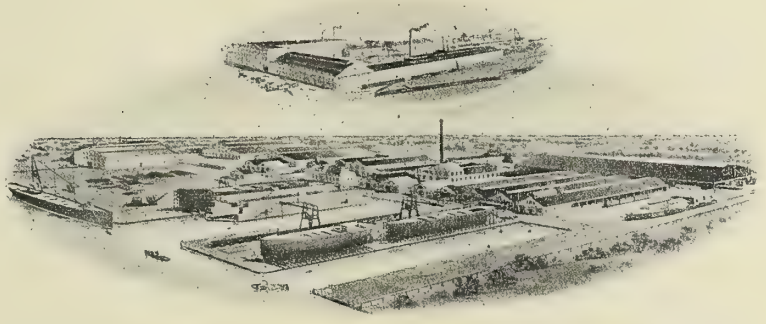

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THE EUREKA PACKING COMPANY. Owing to the great expansion in all branches of the business of James L. Robertson & Sons Company, 218 Fulton street, New York City, it has been necessary to separate the packing business from the steam specialty business. Hereafter Eureka packing in its various forms will be sold by the Eureka Packing Company, 218 Fulton street, New York City. The same general excellence in quality of material and care in construction, which has made Eureka famous as a reliable packing, will continue to be found in these goods. The management of the new company will be the same as heretofore, the only change being that in name, so that the same progressive method of doing business, which has characterized this concern since its existence, will continue. The several steam specialties will be handled under the name of James L. Robertson & Sons, Incorporated. These specialties include the following: Robertson's exhaust pipe heads; Hine eliminators; improved Robertson-Thompson indicators; damper regulators; feed water heaters (Robertson and American); improved Willis planimeters; Robertson's waste oil filters; tic-a-toc automatic grease cups; Robertson's exhaust oil extractors; Robertson's separators; Reliance safety water columns; indicator reducing wheels; pressure-reducing valves, and Robertson's shaking and dumping grate bars.

MARINE FEED WATER HEATERS are manufactured by the James Reilly Repair & Supply Company, 229 West street, New York City. The company states that "Economy in the production of power on shipboard is a question which is receiving more attention every year. While the main engine economy has been augmented to a great extent within the last twenty years in the successive changes from compound to triple and quadruple expansion with the accompanying higher boiler pressures, a similar improvement in the auxiliary machinery has not met with corresponding success, owing principally to the intermittent work required of it. It is generally admitted that to insure the ease of control and operation, quick repair and minimum cost, space, weight and attendance, the single cylinder or single expansion auxiliary engine is the only type that can be used, especially in the smaller sizes, and experience has amply demonstrated this fact. The steam required for the auxiliary system on shipboard is 10 to 18 percent of the capacity of the main boilers, 15 percent being the average in the transatlantic service. Owing to the poor efficiency of the auxiliary engines, especially the direct acting pumps, which are great steam consumers, the greater part of the heat escapes in their exhaust, and when this exhaust is led to the main condenser this heat is lost. Formerly the auxiliary exhaust, or part of, was led to the low pressure receiver of the main engine, in this way making the cylinders of the auxiliary engines the high pressure part of a compound system. This, however, caused considerable complication, as the fluctuations in quantity of exhaust as well as the great quantity of entrained water in it caused various difficulties, and furthermore the system could only be adopted on vessels making voyages of long duration, as the stopping of the main engines entailed changing the exhaust over to the main condenser and regulating the speed of all auxiliaries, owing to the change of back pressure to vacuum. The advantages of hot feed water need not be discussed here, as the economy derived from it, as well as the saving of wear and tear on boilers, is well known. In former years a feed temperature of 160 degrees to 180 degrees was considered ample, but in latter years the introduction of high pressures on boilers in conjunction with forced draught has made the use of hot feed water imperative and temperatures at boiling point and above are an absolute necessity for easy steaming. The feed water heater consists of a cylindrical thin steel shell, with flat or bumped steel heads, and fitted with an annular gun metal manifold at top and also one at the bottom, the two being connected by a series of helical copper coils by means of ground joint unions. The feed inlet leads to bottom manifold and feed outlet leads from upper manifold. The auxiliary exhaust line is led to the top of the heater and the drain connection at the bottom branches into two pipes, one of which leads the condensation to the feed tank, the latter pipe being controlled by a valve, and the other branch leads to the main engine condenser or atmosphere, and is fitted with an automatic relief valve which maintains a pressure of the exhaust in the heater shell. Under regular working conditions the feed water in the coils of the heater will absorb the heat of the auxiliary exhaust and discharge the condensation to the feed tank. In this manner the main condenser will be entirely relieved of the auxiliary exhaust. Slowly the feed pump will cause the feed water to pass through the coils at a slower rate, and the consequent diminution of the condensation of the auxiliary exhaust steam will cause the pressure to rise in the heater shell and the relief valve then passes the surplus exhaust to the condenser or atmosphere."

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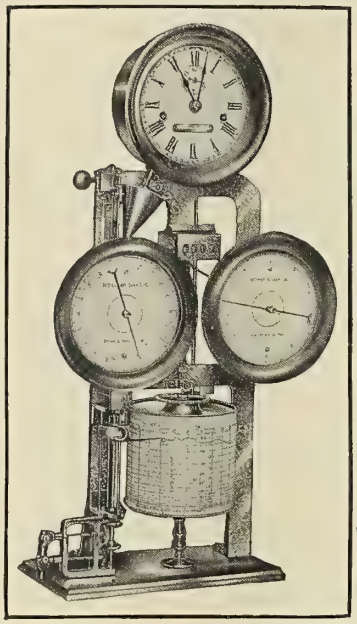

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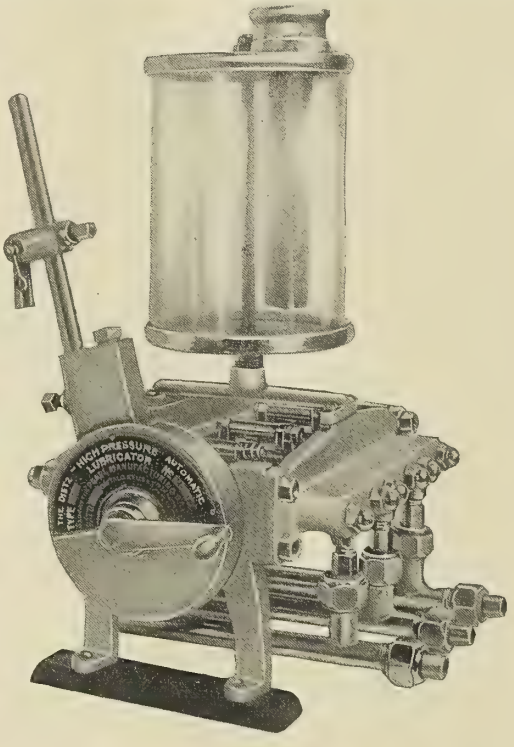

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TRADE PUBLICATIONS.

The 1906 Year Book of the American Society of Refrigerating Engineers, Suite 806, 258 Broadway, New York City, will be sent free to any one addressing the secretary of the society at the above office.

Anchor rubber tiling is handsomely illustrated in a pamphlet issued by the Anchor Tile Company, Trenton, N. J. The various patterns of rubber tiling made by this company are shown in natural colors on twelve plates which give a very good idea of the artistic effects which can be obtained by the use of this tiling. Some of the buff, red and black, and blue gold and white effects are particularly pleasing. Anchor tiling forms a continuous sheet which especially adapts it for any place where there is vibration or shock, such as the deck of a ship. The manufacturers state that it is noiseless and non-slippery, that it is waterproof, easily cleaned and sanitary, and that it is practically indestructible. It can be laid on any floor without special preparation and without interfering with the use of the floor. The price is said to be moderate. Samples and full particulars will be sent upon application.

"Imperial" power driven Type 11 air compressors, belt gear and chain driven are described and illustrated in catalogue X-136, published by the Ingersoll-Rand Company, 11 Broadway, New York City. This catalogue states that with growing adoption of compressed air in every field of productive industry, a demand has arisen for small, economical and reliable air compressors of small capacity suitable to be driven from existing sources of power. The "Imperial" Type 11 compressor has been designed to meet this demand in boiler shops, machine shops, foundries, factories and all other establishments where only a comparatively small quantity of air is required. The distinguishing features of these compressors are their extreme compactness, simplicity and strength. They are built to operate with the least possible attention, and are as nearly automatic as it is possible for a machine of this class to be.

Drop forgings are described and handsomely illustrated in a 116-page catalogue, issued by J. H. Williams & Company, manufacturers of iron, steel, copper, bronze, and aluminum drop forgings, 150 Hamilton avenue, Brooklyn, N. Y. This company is the sole maker of the W and "Vulcan" brands of drop forged specialties, and was the first to establish a uniform line of 15 degree angle wrenches, since generally adopted. In this catalogue are listed seven hundred assorted sizes of thirty-two patterns of wrenches, with a range of openings for every size of bolt from ⅛ of an inch to 5 inches inclusive. Special milling is made to order without extra charge in lots of twenty-five or more of a size. The company will make miscellaneous wrenches in reasonable quantities from available dyes, and special wrenches are made to order and prices given upon receipt of models or drawings, and on learning quantity required.

Disc ventilating fans are described and illustrated in sectional catalogue No. 200, issued by the American Blower Company, Detroit, Mich. This catalogue states "the increased demand for disc fans during the last decade is due to a growing recognition of the numerous and varied aplications in which they are useful. They are adapted to the ventilation of all types of buildings, the removal of smoke, noxious fumes and gases, steam and dust; to the cooling of over-heated apartments; to heating and drying in connection with heating apparatus, either furnaces or steam coils. They are also more economical and effective than the aspirating coils frequently employed to assist the draft in ventilating shafts or eduction flues in large public buildings. In this catalogue it has been our endeavor to clearly state the reasons for our claims of superiority in the fans we manufacture. Our long experience in their application for almost every conceivable purpose places us in a position to advise concerning their successful installation."

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When writing to advertisers please refer to International Marine Engineering.

Engineers, boiler makers and all steam users should ask to be put on the free mailing list of "The Valve World," issued by Crane Company, Chicago, Ill. This monthly magazine always contains many articles of interest and value.

Hornsby-Akroyd oil engines are the subject of an illustrated catalogue published by the De La Vergne Machine Company, foot of East 138th street, New York City. This engine operates on the four stroke cycle principle. In this cycle of operations, expansion and exhaust take place during two strokes of the piston as in an ordinary steam engine, the third and fourth strokes being utilized for drawing in and compressing a fresh charge of gas and air.

Much information of value to engineers and boiler makers is given in the seventh edition of "The Little Book," published by H. B. Underwood & Company, 1025 Hamilton street, Philadelphia, Pa., which will be sent free to readers who will mention this magazine, and will forward two cents for postage. Among the contents of this book are brief descriptions of heat engines; early history of steam engines of various types; the production of steam; belts; shafting; speed; the boiling points of liquids at atmospheric pressure, and the melting points of various metals, etc.

Steel plate fans are described in illustrated sectional catalogue No. 189, published by the American Blower Company, Detroit, Mich. This is a handsome catalogue of 82 pages, containing nearly one hundred illustrations of this company's heating, ventilating and drying fans, together with a complete price list and table of dimensions. The catalogue also lists the American Blower Company's exhaust fans, pressure blowers and engines, besides containing many useful tables; such as the capacities of steel plate fans, pressure in inches of water, areas of circles, horse power of leather belts, cost of coal for steam power, properties of saturated steam, etc.

Marine gasoline engines are described and illustrated in a 24-page catalogue issued by the Frank M. Watkins Manufacturing Company, Cincinnati, Ohio. The "Watkins guarantee" is as follows: "We hereby guarantee every engine we manufacture to develop the actual brake horsepower at which we rate it, and to be made of the best procurable materials. In case of breakage of any part within a period of twelve months from date of shipment, if such breakage is by reason of defective materials or workmanship, we will furnish the part required to replace breakage without charge, f. o. b. cars Cincinnati, all defective parts to be returned to our factory, express or freight prepaid. Parts that need repairing caused by neglect or abuse do not come within this guarantee."

Hoisting engines, docking and winding engines, hauling engines, deck hoisters, automatic steam towing machines, steam capstans, dredge winches of all descriptions, and steam hoists for all purposes are described and handsomely illustrated in a 30-page pamphlet issued by the Chase Machine Company, Cleveland, Ohio. This catalogue states that the machines illustrated are intended merely to give an idea of the variety of the company's product. The company makes everything in the way of double cylinder hoisting engines, and is a specialist in that line. Its product is intended for long severe service and to endure the roughest kind of handling. A free copy of this pamphlet will be sent to the readers mentioning the International Marine Engineering.

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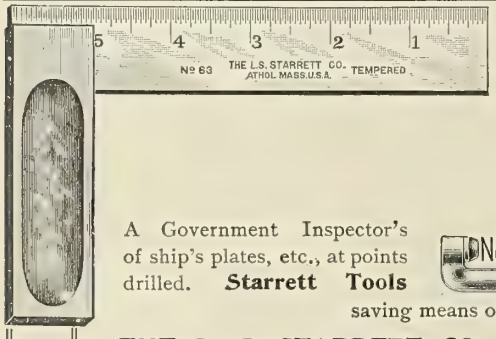

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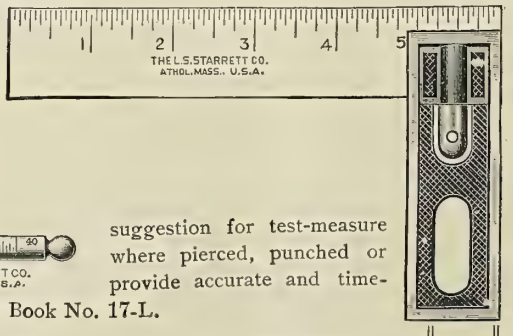

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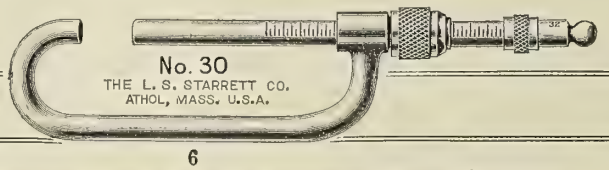

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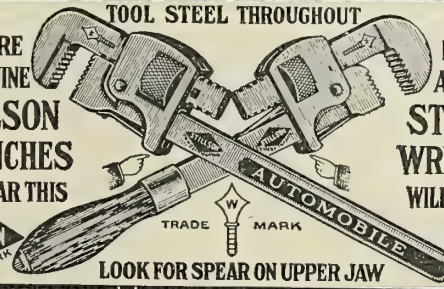

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Wrought iron pipe vs. steel pipe is the subejct of a pamphlet issued by the Reading Iron Company, Reading, Pa.

Huxley ball cocks or blow-off valves, made of bronze, and adapted for all purposes where a quick full and straight opening and a positive joint are desired for any working pressure of 200 lbs. or less, are described in illustrated folders issued by the Huxley Valve Company, 145 Main street, Buffalo, N. Y.

"Marco" packings are described and illustrated in a 60-page catalogue issued by the Cleveland Rubber Works of the Mechanical Rubber Company, Cleveland, Ohio. This company manufactures rubber and asbestos packings for every purpose, for steam, air, gas and ammonia.

The lubrication of wire ropes is the subject of literature distributed by the Macomber-Whyte-Moon Company, 122 Center street, New York City. This company advocates the use of "Monarch" graphite grease which it states will not gum, cake or stick, and which it says is absolutely water-proof and prevents abrasion and rust.

Asbestos shingles and asbestos building lumber are described in an illustrated booklet issued by the Keasbey & Mattison Company, Ambler, Pa. The catalogue states that these shingles are absolutely fire-proof, and are not affected by continuous moisture or frost, nor are they subject to deterioration by the elements in any manner.

Circulars descriptive of the Riley patent vertical water tube boiler are being distributed by Messrs. Riley Bros., Limited, Stockton-on-Tees, England. This boiler was recently designed to meet the demands for a vertical donkey boiler for marine uses but has proved a most satisfactory boiler for all purposes. The circular gives much information regarding the design and construction of the boiler and its several characteristics.

Extra heavy boiler stop valves, steam turbine throttle valves, super-heated steam valves, reversed current boiler stop valves, throttle valves with pilot disc, and valves of all kinds designed to meet exceptional conditions, are the subject of an illustrated catalogue issued by the New Bedford Boiler and Machine Company, New Bedford, Mass.

Valves, indicators, gauges and marine specialties of all kinds are handsomely illustrated and fully described in a number of very complete catalogues issued by the American Steam Gauge and Valve Manufacturing Company, 208 Camden street, Boston, Mass. Readers of the International Marine Engineering who will mention this magazine will receive free copies of these books.

The results of a water softening and purifying system are shown in a folder in the form of a ledger distributed by the William B. Scaife & Sons Company, 221 First avenue, Pittsburg, Pa. This folder illustrates the savings effected in a 2000 H. P. water softening and purifying system. According to this ledger reproduction, the saving in six months' time was $2079.47.

"Century" Kerosene burners of the type manufactured by the Century Auto-Power Company, East Orange, N. J., are described in a twelve-page catalogue which this company issues. The catalogue describes the many advantages in using kerosene, and the burner itself is illustrated in several views and its operation explained in detail. The burners are made especially for use in connection with launches, yachts, etc.

The Ideal automatic pump governor is described and illustrated in a catalogue issued by the Ideal Automatic Pump Governor Company, 15 Whitehall street, New York City. The catalogue states that this is the only pump governor ever approved by the National Board of Supervising Inspectors of Steam Vessels, and that it is the only pump governor on the market having a body of oil in the water pressure cylinder.

Lennox rotary splitting shears for sheets and light plates are described and illustrated in literature published by Joseph T. Ryerson & Son Company, Chicago, Ill. These shears are stated by the manufacturer to be the speediest and most practical sheet shear on the market. The rotary principle adapts them to curved work as well as straight, and makes them particularly useful in difficult sketch work.

The 1906 catalogue issued by Cornell & Underhill, 43 Beach street, New York City, is a very complete cloth bound book of 352 pages, containing about two thousand illustrations. Wrought iron pipes, cast iron and malleable iron fittings, brass pipe and fittings, valves, cocks and hydrants, plumbers' and steam fitters' supplies, specialties and tools, are very exhaustively illustrated and described.

The "Little Giant" floor scraper is described in an illustrated folder issued by the Hurley Machine Company, 153 South Jefferson street, Chicago, Ill.

Marine gasoline engines, two and four cycle, are described and fully illustrated in a catalogue published by the Grant-Ferris Company, Troy, N. Y.

Toppan power boats are described in a 34-page illustrated catalogue issued by the Toppan Boat Manufacturing Company, 9 Haverhill street, Boston, Mass.

"Compressed Air", a monthly magazine devoted to the useful appliances of compressed air, is published by the Kobbe Company, 90 West Broadway, New York City, and also contains articles of interest and value to users of compressed air.

Swift's automatic engine, closed frame self-oiling, is described and very clearly illustrated in a pamphlet issued by Donegan & Swift, 6 Murray street, New York City. This engine is used for driving line shafts and electric generators with pulleys.

Ryerson's Monthly Journal and Stock List, published by Joseph T. Ryerson & Son, Chicago, Ill., will be sent free upon request to readers of International Marine Engineering, and should be in the hands of every engineer, boiler maker, user of structural steel and railroad man.

"Ideal Power", a monthly magazine devoted to compressed air and electrical appliances, published monthly by the Ideal Power Publishing Company, Fisher Building, Chicago, Ill., always contains articles of interest and value to users of compressed air.

"A. B, C." blowers for cupolas, forges, metaling and heating, furnaces, forced draft, pneumatic tube systems, and all other appliances where a strong steady air pressure is required are described in illustrated sectional catalogue No. 190, issued by the American Blower Company, Detroit, Mich.

A Different Engine is the title of a booklet issued by the American Blower Company, Detroit, Mich. This booklet states "a long felt want in the line of small vertical engines is met by our Types A and E. These engines will run smooth and cool and quietly at high speeds for long periods without oiling or adjusting."

BUSINESS NOTES.

A patent was granted May 1, 1906, No. 819,103, to Elisha Webb, Jr., of Elisha Webb & Son Co., Philadelphia, Pa., on a galley hot water system, which is used in connection with the "Webbperfection" galley range. "The conveniences of this range and system appeal to up-to-date ship owners at a glance. It is being used by several departments of the United States government for vessel use, and is specified for a number of large steamers now under construction. Owners of sail craft, particularly yachts, find it most desirable in view of the completeness which it is impossible to obtain in the bath and lavatory system." The Elisha Webb & Son Co. are contemplating additional manufacturing facilities in order to keep up with this, and the general growth of their business, their present location at Water and Chestnut streets, not affording them sufficient accommodation.

The Weston Electrical Instrument Company, Waverly Park, Newark, N. J., has taken Mr. Caxton Brown into the Newark factory, as secretary of the company and sales manager, and in his place has put Mr. Stanley Brown as Manager of the New York office. In connection with this office, there has been installed a repair department, whose duty is to take care of the repairs in the metropolitan district, and particularly to look after emergency calls. This new feature has been welcomed by many users of the Weston instruments in New York City, and has enabled the manufacturer to insure a higher degree of satisfaction to customers than ever before. The company is much pleased with the present instrument outlook, and is busy preparing models for measuring apparatus to meet the wider demands of modern electrical requirements.

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Marine generating sets are to be furnished by the B. F. Sturtevant Co., Hyde Park, Mass., for the turbine steamer *Governor Cobb* of the Eastern Steamship Co., Boston, Mass.; and for the police boat *Samuel G. King*, Philadelphia, Pa.

Asbestos building lumber designed for use on board ship is manufactured by Keasbey & Mattison Company, Ambler, Pa. This material, so the company states, has a large use on shipboard, and in the shape of tile embedded in cement, is largely used on steamers plying on the Great Lakes.

An important decision was, on May 28, rendered in London, Eng., in the Chancery division of the High Court of Justice. The suit was that of the Consolidated Pneumatic Tool Company, Ltd., plaintiff, vs. The Ingersoll-Sergeant Drill Company and another, defendants. The Consolidated Pneumatic Tool Company, Ltd., brought suit against the Ingersoll-Sergeant Drill Company on alleged infringements of the former's patents. They sought to enjoin the sale of Haeseler pneumatic hammers in Great Britain. The decision was rendered in favor of the Ingersoll-Sergeant Drill Company. The costs were adjudged against the plaintiffs.

The loose nut trouble in engines and vibrating machinery is overcome by using the patent "Helicoid" lock nut according to the manufacturer, Bayliss, Jones & Bayliss, Ltd., Wolverhampton, England. Readers of International Marine Engineering who will mention this magazine will be sent free literature fully describing the immense power of this nut, which it is stated is designed for high class engineering work of every description, and obviates the use of a check nut The "Helicoid" lock nut is made by coiling on a mandril a bar of steel or other suitable metal of special section in a cold state in such a manner that a close helical coil, having a permanent state, is formed. This coil is then sawed to a suitable length according to the size of the nut. The blanks are then tapped, faced, shaped as required, and chamfered and countersunk at both ends. In tapping, the threads are cut to the same pitch as those of the bolt, but the internal diameter of the nut is made slightly smaller than the diameter of the bolt on which it is intended to be used, so that in the placing of the nut on the bolt, the former of necessity expands thereby bringing into action the spring of the coil.

New Chicago branch of the Armstrong Manufacturing Company. In order to better serve the needs of a greatly increased Western business in its steam, water and gas fitters' tools and machines, the Armstrong Manufacturing Company, Bridgeport, Conn., has opened a branch office and warerooms at 23 South Canal street, Chicago, Ill. The new branch is in charge of Mr. Hugh S. Laing, formerly assistant manager of the New York City Branch.

The economy of good engineering. The economic value of good engineering is strongly emphasized by an instance which has recently been brought to our attention. The B. F. Sturtevant Co., Hyde Park, Mass., submitted in competition with other blower manufacturers an estimate for certain electric fans of its own manufacture, and according to its usual practice carefully designed the same together with the piping system in order to accomplish the desired results with the least expenditure of power. To this end large, slow running fans were planned and the relative air velocities at all points were carefully regulated. Owing to the large size of the apparatus the price was fully $500.00 the highest, but to impress upon the purchaser the economic value of such an equipment the B. F. Sturtevant Co. enforced its logic by guaranteeing that the power required would not exceed 15 H. P., and agreed to forfeit $100.00 per H. P. for any excess above this, provided it received a bonus of $50.00 per H. P. for any reduction below the amount specified. The lower priced arrangement submitted by its competitors was at first stated by them to require 50 H. P., a statement which, with evident purpose, was subsequently reduced to 25 H. P. But the Sturtevant apparatus was wisely purchased under the conditions of the guarantee, and to the credit of the Sturtevant Co. who allowed sufficient margin in their calculations to insure the receipt of a bonus, the trial test indicated an actual power expenditure of only 10.5 H. P., thus calling for a bonus of $225.00. This was gladly paid by the purchasers with the satisfaction of knowing that, although the first cost was greater than might have been incurred if a competitor's design had been accepted, the power was 50% less. That is to say, an excess of $725.00 had been paid, but a constant saving of 14.5 H. P. was insured. Upon a basis of $50.00 per H. P. per year the excess payment will be made good by the saving in one year's operating expense.

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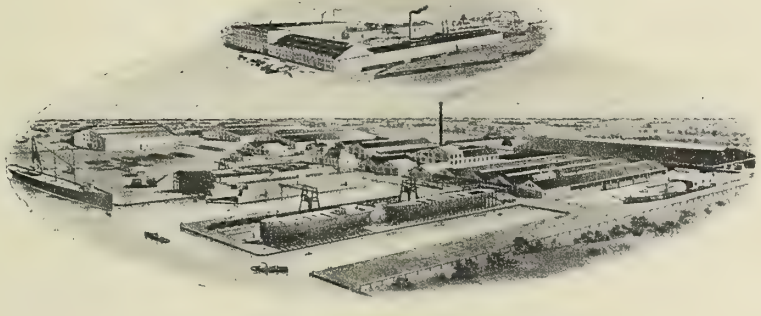

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MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

Franklin Air Compressors. In a recent issue we stated that users of air compressors are asked to send to the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., and learn why this company has decided to build air compressors. From this statement, it would appear that the Chicago Pneumatic Tool Company had just begun the manufacture of air compressors, whereas the fact is that this company has been building them for more than four years.

Large orders for Falls Hollow Staybolt bars. The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, states that it is in receipt of an order for two car loads of Falls hollow staybolt iron bars to be shipped to the Mitsu Bishi Dock Yard and Engine Works, Japan; also for several tons of double refined charcoal iron bars to be consigned to the Prussian State Railway Department. This company's iron bars are now being shipped regularly to Australia, New Zealand, Norway, Prussia, Germany, Japan, China, Korea, Brazil, Peru, Cuba, Porto Rico and other foreign countries.

The published report of the contract trial performance of the United States battleship *Louisiana* shows that the forced draft equipment arranged for discharging into the closed fire room maintains therein an average air pressure of 1.98″ of water, while the blower engines were running at 444 r. p. m. The forced draft equipment consists of 12 Sturtevant blowers, made by the B. F. Sturtevant Co., Hyde Park, Mass., located two in each boiler compartment above the boilers. Each engine has two cylinders, 6″ diameter and 5″ stroke, the fan wheels being 66″ in diameter.

A ratchet attachment for die stocks. The frequent necessity for doing pipe work and for making alterations and repairs to piping in close and cramped quarters has brought several ratchet stocks on the market. These all require that the buyer purchase a complete stock in order to avail himself of the ratchet. The Armstrong Manufacturing Company, Bridgeport, Conn., however, makes ratchet attachments for its various sizes of stocks which are easily attached to or removed from the stock by simply removing a thumb screw. This allows the pipe fitter to use the regulr Armstrong stock on ordinary work and have only the added weight of the ratchet in cases where it is necessary to free the pipe in confined space. A complete 48-page catalogue of pipe fitters' tools and machines wil be mailed upon application t o the firm.

The Dietz high-pressure automatic lubricator, built by the Pearl Manufacturing Company, 344 Oak street, Buffalo, N. Y., is the subject of an illustrated catalogue which states "Many force feed lubricators have been put upon the market and they have been partially successful when operating under low pressure. When put to work under the high pressures now in use, and especially when superheated steam is employed, they have failed to give satisfaction, as, after a time, leakage through the valves would occur and lubrication would become imperfect and intermittent. Efforts have been made to overcome leakage by increasing the number of valves, with the obvious result of only delaying the final breakdown of the pump for a short time. Determining to overcome these difficulties, the Pearl Manufacturing Company has put a pump on the market that, more than any other, overcomes every objection that has hitherto annoyed the users of force feed lubricators."

A well equipped repair department with portable tools of all kinds, is a part of H. B. Underwood & Company's works at 1025 Hamilton street, Philadelphia, Pa. This concern sends competent mechanics to all parts of the country to repair engines and bore out cylinders and valve ports in position, and turn off crank shaft journals without taking the shaft out. Any one having a job of this kind to do, knows what it means to take off a fly wheel and remove the boxes and take the shaft to the shop to have the journals trued up. The necessity of this is avoided by the Underwood Company sending its portable tools to the engine room to do the work there. This company furnishes new valves and valve stems, and new adjustable pistons and rods, and metallic rod packing, and new valve motions and dash pots. In fact it rebuilds the wearing parts of the engine. The company's portable milling machine is for milling off valve seats on solid steam chests. It has a portable planing machine for planing off hammer blocks in position. The company was recently called upon without a moment's notice to take out a 12-inch crank pin and rebore the hole and make and fit a new pin. It required 250 tons pressure to get the old pin out, but the company did the work without taking the shaft out, and also bored the 50-inch cylinder on the same engine and furnished new piston and rings, and had the engine running in ten days. The company has made a specialty of this class of work for many years and states that its men have become experts in all kinds of engine repairs.

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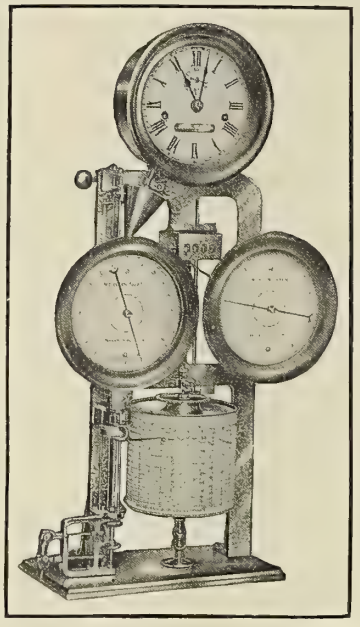

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Valves are accessible and may be removed while in operation.

From one to six feeds, single or double acting.

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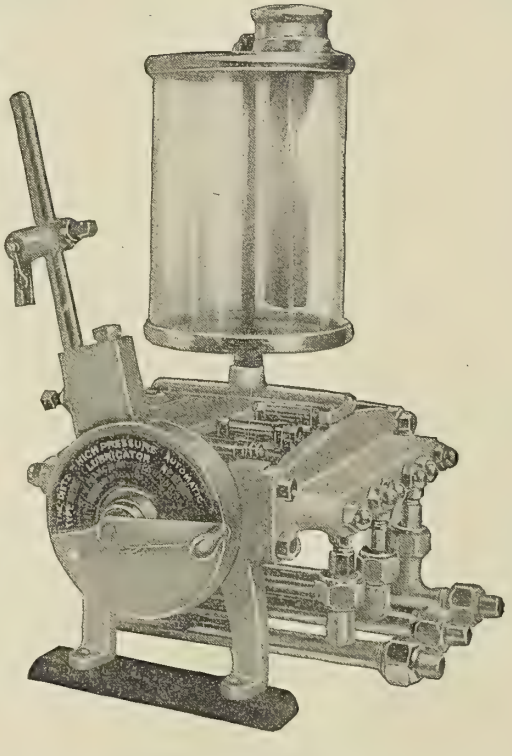

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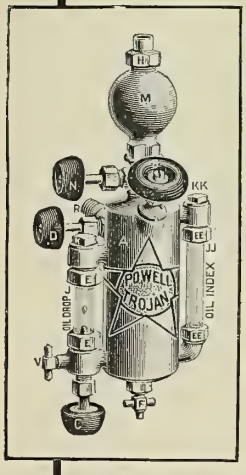

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As evidence of the efficiency of the "Rich" flat high speed drills and chucks, manufactured by the Geo. R. Rich Manufacturing Co., Buchanan, Mich., for armor plate drilling and like difficult work, the above company cites the receipt of a large order from the Newport News Shipbuilding & Dry Dock Co., a duplicate of an order placed by the same concern during the fall of 1905. Strong claims are made for these tools for drilling especially hard metal and the past year marked their adoption by all of the navy yards and several of the leading shipbuilding companies of the country.

"The use of a limpid oil with graphite will reduce friction to one-third that of the railway bearing" is the statement made by the Joseph Dixon Crucible Comapny, Jersey City, N. J. In support of this statement, it publishes a test made by Professor C. H. Benjamin of the Case School of Applied Science as follows, which it states is of especial interest, in view of certain results which have been obtained by Professor Goss from plain bearings lubricated with kerosene and Dixon's flake graphite: "Professor Benjamin's experiments were made upon several different kinds and sizes of roller bearings in common use. The purpose of the experiments was to determine the friction developed by such bearings when run under different conditions of laid and speed. The apparatus employed was similar to the well-known Thurston oil testing machine, and was in every way well adapted to the purpose for which it was used. Professor Benjamin's reputation as an experimenter, and the highly refined character of the apparatus he employed, leave no question as to the accuracy of his work. In the results which were obtained by Professor Benjamin from the use of roller bearings $1\frac{13}{16}$ inches in diameter, in comparison with those obtained from the step bearing testing machine made use of by Professor Goss in connection with his study of graphite under similar conditions of pressure, it was demonstrated that the coefficient of friction developed by the roller bearings was greatly in excess of that developed by the use of graphite and kerosene in a step bearing. Thus, when the pressure is 40 pounds per square inch, the coefficient of friction for the graphite and kerosene is .00459, while the average coefficient for the two roller bearings is .018, or 3.92 times greater. When the pressure is 50 pounds per square inch, the coefficient of friction for the graphite and kerosene is .00442, and for the roller bearing .0175, or 3.95 times greater. There are no conditions which can impair the value of this comparison except that a higher speed was employed with the roller bearing than with that which was lubricated. But as the coefficient of friction of the lubricated journal generally diminishes with increase of speed, a correction of this would make the differences in results greater. The step bearing was able to carry a load of 110 pounds per square inch, while the greatest load carried by the roller bearing was 61 pounds per square inch, or only 55.5 percent as much as that of the step. Professor Benjamin also made tests of plain bearings and found that the friction of roller bearings is less than that of plain bearings. There is no secret in all this. The plain bearings experimented on by Professor Benjamin were undoubtedly lubricated with an oil posessing considerable body, whereas in the presence of graphite a very light oil will suffice. The friction of lubricated journals is largely a matter of viscosity of the lubricant. For any given service, the use of graphite will always present a reduction in viscosity of the liquid lubricant and hence a reduction in friction. The extent to which such a change may be carried is, however, not commonly recognized. It is well illustrated by the fact that a graphitic mixture, well designed for the service expected of it, gave results which leave the roller bearing quite distanced in the race."

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Marine motor builders are asked to consult the Billings & Spencer Company, Hartford, Conn., before placing orders for drop forged steel, or machinists' tools of any nature.

The steering engines of the United States battleships *Kansas* and *New Hampshire* and the armored cruiser *Washington* were made by W. D. Forbes Company, Hoboken, N. J. This company makes a specialty of steering gears of all sizes, also blowers and engines, circulating pumps and engines, and engines for direct connecting to electric generators.

Portlights, sail hooks, hinge butts and marine hardware and specialties of every description are made by the Delaware Marine Supply Manufacturing Company, Wilmington, Del. This company installed forty thousand pounds of portlights in the Pacific Mail Steamers *Mongolia* and *Manchuria*, and reports business so active that it has been forced to greatly enlarge its factory and to work over time for many months.

Large Castings.—The cast-steel stern posts of the new Cunard turbine steamers were made in the works of the Darlington Forge Co., Darlington, England. These castings were so large that they could not be loaded on a car in any way to keep them within the clearance lines, and this prevented their delivery by rail to the shipyards. They were accordingly sent by rail to Middlesbrough, which was possible by careful train operation, and sent from there.

Wangler rotary bevel shears and ball-bearing self-feeding roller expanders are advertised by the Scully Steel & Iron Company, Chicago, Ill. Regarding its rotary shears, the company states that they will bevel either straight or irregular work as fast as the operator can handle the plate. The bevel is 60°. Both cutters are reversible and the top cutter fastening will allow the beveling of any size of equal leg angles. The machine can be arranged for motor drive. Regarding its roller expander for power or hand, the company states that it is self-feeding and has ball-bearing back of the guide collar to prevent friction and wear; that it may be used either by hand or with reversible air drill, and will save half the labor either way. This tool will be sent on trial. The Scully 144-page stock list is free for the asking to readers of International Marine Engineering.

Portable and stationary forges are manufactured by David Cumming, 787 West Kinzie street, Chicago, Ill. Regarding Mr. Cumming's portable forge No. A, the manufacturer states that it can be easily taken apart and put together again; that the heaviest part weighs 28 pounds and the largest part is the basin, 18 inches in diameter. It can be taken in sections into the fire room of a ship. There are no chains, leather belts or bellows, and nothing that is breakable or affected by weather. The basin and pipe are steel, and it has gas pipe legs. The blast is strong and steady, equal to 42-inch bellows. The basin can be slipped off, and a hose attached to pipe for ventilating. The entire machine weighs 90 pounds and the price is $35.00. Mr. Cumming's No. E forge is the same style but has a larger blower. The basin is 24 inches in diameter and the weight 180 pounds. The price is $65.00. Mr. Cumming was awarded a gold medal at the World's Fair in Chicago.

A new corporation, known as the Ramsey Engine Company, with offices in the Bullitt Building, Philadelphia, has been formed for the purpose of exploiting the Ramsey Crank Mechanism, which is a device applicable to all single-acting engines. A number of advantages are claimed for this device, and it is stated that in a series of tests made under the supervision of the University of Pennsylvania on a vertical engine having a 9″ cylinder and 7″ crank a total efficiency of 25.9% was obtained, which is very extraordinary for an engine of such dimensions. The officers of the Ramsey Engine Company are: President, Robert H. Ramsey, who is the inventor of the Ramsey Crank Mechanism; Vice-President and General Manager, Russell H. Ramsey; Secretary and Treasurer, R. Howard Eisenbrey. Mr. Russell H. Ramsey and Mr. Eisenbrey were formerly connected with the Harrison Safety Boiler Works, of Philadelphia. It is understood that the new company will not manufacture engines, but that it will issue license rights to engine manufacturers.

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BY

GEORGE SIMPSON

MEMBER OF THE INSTITUTION OF NAVAL ARCHITECTS

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17 BATTERY PLACE **NEW YORK**

A New Galvanizing Plant. J. H. Paine & Son, Noank, Conn., builders of marine engines and machinery, have added to their works a complete galvanizing plant, and state that they are in a position to fill orders on short notice. In straight work the company can galvanize pieces up to 12 feet in length, or longer if they are somewhat bent. The company is also prepared to galvanize chain.

Towing Dry Dock Dewey. In towing the dry dock Dewey to the Philippine Islands, the Government has taken every precaution possible to insure the safe arrival of the dock. The most important part of the apparatus for towing is the Shaw & Spieg automatic towing machines, which are made by the American Ship Windlass Company, Providence, R. I., and one of the largest sizes of which has been installed on each of the three steamers doing the towing. These machines are installed on the stern of the steamers and each carries a 1200-foot steel wire hawser 2 inches in diameter. The peculiar feature of the towing machines is that when a strain comes on the towing hawser which is greater than the machine is set to stand, the machine will run backward and pay out the hawser, and in doing so it opens a valve automatically, which allows more steam to pass into the cylinders until the pressure in the cylinders equalizes the strain on the hawser. Then when the extra strain on the hawser has passed there is of course too much steam in the cylinders to balance the normal strain on the hawser and the latter is therefore wound in again to its normal position and the valve closed. This operation is repeated as often as a heavy sea strikes the dock and it will therefore be seen that this machine affords great elasticity in the tow line and prevents it from parting as would be the case under ordinary conditions. One of these machines was used for towing the dock which is at Algiers, La.

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TRADE PUBLICATIONS.

Condensed Catalogue No. 135 of blowers, engines, motors, generating sets, economizers, steam heating apparatus, forges, exhaust heads, etc., issued by the B. F. Sturtevant Co., Hyde Park, Mass., is a remarkable compact publication. It serves as does no other publication of this well known house to indicate the great variety of its products and the completeness of each distinctive line. The name "Sturtevant" is so widely connected with "Blowers" that is hardly surprising to find nearly half the catalogue devoted to the many varieties of these machines. Beginning with the high pressure blowers, capable of creating pressures up to 10 pounds per square inch, there are listed steel pressure blowers for pressures up to 16 ounces per square inch, monogram fans operating up to 5 ounces per square inch, steel plate fans with a still less limit of pressure ,and disc and propeller fans which seldom operate at pressures above one ounce per square inch. Engines, motors, generators and generating sets here occupy a much larger proportion of space than in any previous catalogue published by this company. No less than 80 sizes of engines, 42 of standard motors, and 36 sizes of generating sets are illustrated and listed. Forges in a list of 38 sizes, exhaust heads, steam traps and the like find a place in these pages, while heating, ventilating, drying and mechanical draft apparatus in well known types are briefly described. New features in the line of Sturtevant products such as economizers and pneumatic separating systems are also shown. This publication has been especially designed as a pigeon-hole catalogue for desk use. As such it will be found to fully meet the requirements.

The "Universal System" of machine molding is described and illustrated in a 36 page catalogue issued by Ph. Bonvillian & E. Ronceray, Paris-Aubervilliers, France. This catalogue states that "There is a general belief among foundry owners that machine moulding is practicable only when a great number of castings of the same pattern are needed; and that such castings are flat with a lot of taper, and consequently easy to mould. The moulding machines at present known, are simply presses, actuated either by hand, mechanical device, hydraulic pressure or compressed air; the makers seldom speak of the way to make pattern plates, which is the main point in machine moulding. In fact, this is the drawback which has prevented the machine moulding process from being more in use. The making of pattern plates by the ordinary means, of even easy castings, is a very costly job, and requires first class fitters to have them made with the required accuracy. As regards intricate castings, as are now used in the motor car business, it would be necessary to make a special and very costly machine for each casting, entailing enormous expense. Very often also, special boxes, accurately machined are needed, which makes the process almost prohibitive in price. For these reasons, founders conclude that machine moulding is not practical. Up to the last few years this may have been correct, but now the new process and the new moulding machines have done away with all these drawbacks. The new process is really "Universal" and conforms to all possible cases, from the easiest castings, to the most intricate ones, and this with an enormous saving, not only on hand moulding, but on machine moulding as known until now. The manufacture of the pattern plates, which was the greatest obstacle, is now easily done by the moulder himself, no more fitter's work being required ,however intricate the casting may be. Moreover, most of the vertical cores are made on the machines at one ramming, and we may add that the new machine moulding process effects an economy on 50 castings only off one pattern. It requires no accurately machined frames: the machine can mould, either with non machined frames when dry moulds are needed, or without any boxes when green sand is used. By the use of our automatic sand distributor, the output in moulding small flat castings, is enormous, and leaves all other processes known far behind."

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When writing to advertisers please refer to INTERNATIONAL MARINE ENGINEERING.

Steel tanks are the subject of Bulletin No. 40 distributed by the Oswego Boiler and Engine Company, Oswego, N. Y. These tanks are used for gas, gasoline, air and water, and for blow-off, receiving, drip, pressure, or hot water tanks.

Ryerson's Monthly Journal & Stock List, published by Joseph T. Ryerson & Son, Chicago, Ill., contains among other articles in its July issue an article on Iron and Steel, Wherein They Differ and the Methods of Manufacture; How to Manufacture Punches and Dies; a Straightening Press Made of Structural Shapes; Flange on Round Heads; Plant of the Marinette Steam Boiler Works; Shear Scrap; Convenient Data for Motor Uses; A novel Piece of Plate Construction; The Fly and the Fly Wheel; Rules for Finding Pulley Sizes; New Plant of the Crawford Locomotive and Car Works; Personals, Trade Notes and Publications received. Any reader mentioning this magazine will be put on the free mailing list to receive this monthly stock list regularly.

Reflections of a Rambler is the title of a handsomely printed and illustrated booklet by Elmore Elliott Peake, which is being distributed by the Warner & Swasey Company, Cleveland, Ohio, and which tells of the merits of the Warner & Swasey prism binocular, "small as an opera glass, powerful as a telescope". This book tells in an interesting style of the experiences of a summer cottager and what he learned of nature through the Warner & Swasey binoculars. The following is an extract: "Leaping across the lake with my little wonder-worker, (it is surely the equal of seven league boots,) and alighting at a secluded cove half a mile away, I often surprise an otter at his breakfast of fish, using a flat rock for a table. After he has wiped his chops and slunk away, a gray old musk rat of alder-manic rotundity frequently waddles out of an adjoining clump of sedge, drags his fat carcass up the rock and munches on the scraps".

Northern single voltage variable speed systems are described and illustrated in a catalogue issued by the Northern Electrical Manufacturing Company, Madison, Wis. The catalogue states that a short time ago this company was advocating electric motor drives as a means of delivering with the utmost expedition and economy convenient power to various machines in manufacturing plants, and that Northern drives have saved thousands of dollars in the transmission of power. Once the company's transmission system had been perfected, its engineering department started to develop improvements in the application of electric motors, and the company states that the Northern variable speed motors are the outcome of these efforts and that any speed variation practical for ordinary machine drive work is accomplished with ease under this system.

Drop hammers are the subject of a handsomely illustrated catalogue issued by the Billings & Spencer Company, Hartford, Conn. This company states that it has made a specialty of the drop forge business for a period of over thirty-five years in the manufacture of machinists' tools and forgings of every description, and having used all of the various styles of drop hammers that have been on the market during that time has had an opportunity to note their defects, and where desirable improvements could be made, to thoroughly test such improvements in their own shop, and to perfect them for adoption on the machines the company manufactures. The catalogue states that it is to this fact that the company is an actual user of drop hammers that it attributes its success in developing the improved machines it is now building and which are described in this catalogue.

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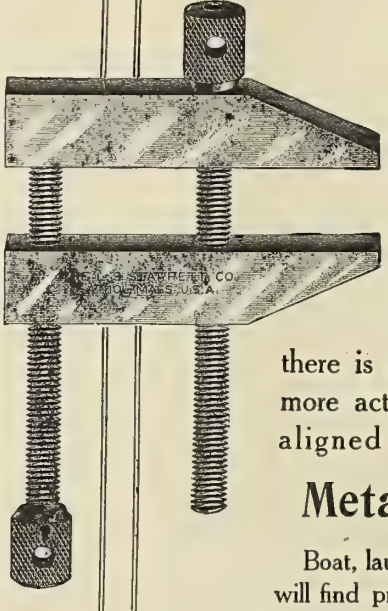

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Lever shears are described and illustrated by Joseph T. Ryerson & Son Company, Chicago, Ill. These shears are intended for cutting sheet iron in shops where a power squaring shear would be too high in price. They are intended particularly for cutting heavy iron plates. The lever works to the front so that one operator can use the machine. These machines are stated to be durable and especially adapted to cutting sheets of any length and width as well as bars, and are off-set so that in splitting long or wide sheets, the metal will pass through freely and will not bind.

The Richardson Engineering Company, Hartford, Conn., manufacturer of storage battery electric light plants for launches, yachts, country houses, etc., has found it necessary to build a new three story and basement factory with more than three times the former floor space. In this new factory the company states that it will be able to turn out every line of electrical work and that it will furnish the best and latest goods on the market, scientifically designed. The company has sold a large number of its standard equipments for launches this season, which have been shipped to all parts of the country.

Supplies for boiler shops. One of the largest houses in the country for supplying almost everything needed in a boiler shop is that of Cornell & Underhill, 43-45-47 Beach street, and 135-137 Hudson street, New York City. This firm carries everything in the way of boiler tubes, both straight and bent, as well as coils of all sizes, floor plates, malleable iron fittings of all kinds; brass pipes and fittings, as well as brass and flange unions; valves of all kinds and for all purposes, steam cocks; hydraulic fittings; everything in the way of boiler and engine trimmings, such as cocks, gauges, whistles, injectors, damper regulators; also steam traps, exhaust heads, feed water heaters, stocks and dies, pipe threading machines, pipe vises, cutters and wrenches, tube expanders, reamers, drills, hammers, caulking tools, tube cleaners, pipe coverings, etc.

In an article on the "Abuse of Valves," published in *The Valve World,* Mr. R. T. Crane, President of Crane Co., Chicago, Ill., says that in ninety-five cases out of a hundred leaky valves are due to abuse and carelessness on the part of the men who install them, rather than to defects in the valves themselves. If the few simple directions given by Mr. Crane for the installation and care of valves were generally followed much of the annoyance and expense due to leaky valves would be avoided. The article has been reprinted in the form of a poster suitable for hanging on the walls of engine rooms and shops, and all users of valves may obtain one or more copies free by writing Crane Co., Chicago. The posters are legibly printed in two colors on heavy calander bristolboard, and contain no advertising other than the name of the publisher.

Truscott Boats is the title of a large and handsome catalogue issued by the Truscott Boat Manufacturing Company, St. Joseph, Mich. It is mentioned in the introduction that in offering this catalogue the company takes pride in stating that it is the largest and most complete ever compiled by a firm of power boat builders. The Truscott Boat Manufacturing Company has been in business twenty years. Every user of motor boats and appliances should send for a copy of the catalogue without fail. Numerous illustrations of machinery, gas and steam engines, boats of many classes, search lights, propellers, and other auxiliaries are all taken from actual products of the Truscott Company, and give excellent ideas of the work this concern is turning out. Boats of all sizes are illustrated from small row boats up to 85-foot cabin cruisers.

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For 30 years their reliability has been proven. Made in many styles and sizes.

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Spring, seat, globe and angle valves are described and illustrated in a folder issued by the Crosby Steam Gage and Valve Company, 16 Dey street, New York City. All renewable or working parts of this valve are said to be made by special machinery and tools, and are interchangeable.

Plier Palmistry is the title of an illustrated pamphlet issued by the Utica Drop Forge and Tool Company, Utica, N. Y. manufacturer of nippers and pliers. Tools for the electrician, plumber, manufacturer, and "tools for everybody" are among the articles described and illustrated.

"A Concise History of Lead Pencil Making", being a speech of the Honorable John A. Walker, Vice-President and General Manager of the Joseph Dixon Crucible Company, Jersey City, N. J., is being distributed in pamphlet form by that company, which will forward free copies upon request.

Pneumatic Tools are described and illustrated in a booklet issued by the Ingersoll-Rand Company, 11 Broadway, New York City. The booklet states that this company makes tools for any pneumatic requirements, and that it manufactures not alone pneumatic tools but also air compressors and all accessories.

"The Launch" is the title of a quarterly magazine published by the Truscott Boat Manufacturing Company, St. Joseph, Mich., which always contains articles of interest to users of boats and gas engines. It will be sent free upon application to readers mentioning INTERNATIONAL MARINE ENGINEERING.

The July and August Stock List issued by the Scully Steel & Iron Company, Chicago, Ill., contains the usual valuable list of iron and steel tools and machinery, and should be in the hands of every engineer and boiler maker. All readers who will mention this magazine will be placed upon the free mailing list.

Ice and refrigerating machinery. A 48 page pamphlet describing various types of horizontal and vertical ammonia compression refrigerating machines and equipment for ice plants has been issued by the De La Vergne Machine Company, Foot of East 138th street, New York City.

Special circular No. 56 issued by the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., calls attention to the Duntley air cooled electric drills, portable grinders, blowers and drilling stands, and also announces to the trade that the company is ready to deliver on orders its new type "Little Giant" drills with Corliss valves which the company is manufacturing under the Hayes patents.

Tube expanders and tube cutters are described and illustrated in Ideal Catalogue No. 7 issued by Gustav Wiedeke & Company, Dayton, Ohio. This is a very complete book of 54 pages with several hundred illustrations. It contains price lists and detailed description of the many boiler makers' tools therein listed. In addition to expanders and tube cutters, punches, ratchets, staybolt taps, hand tools and many other boiler makers' tools are described and illustrated.

Second hand metal working machinery is the subject of 60 page catalogue No. 12 distributed by the Niles-Bement-Pond Company, 111 Broadway, New York City, a free copy of which will be forwarded upon request, and should be in the hands of every intending purchaser of such machinery, Railroad machinery; lathes of many varieties; appliances; shapers; drills; boring machines; punches; presses; grinding and polishing machines are among the many listed.

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FOR LIGHT DRAFT RIVER STEAMERS
OUR EXPERIENCE IN BUILDING AND OPERATING BOATS ENABLES US TO GUARANTEE DEPENDABLE MACHINERY. CATALOGUE FREE
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BUSINESS NOTES.

The annual picnic to the employees of the Lunkenheimer Company, Cincinnati, Ohio, and their families was held July 28th at Woodsdale Island, a pleasure resort about thirty miles from Cincinnati. At these picnics the company furnishes all the amusements, refreshments and transportation free of charge to the employees. There were two bands of music in attendance, together with a troupe of professional entertainers, and it is safe to assume that the employees had a good time. There were two trains of ten cars each to convey the 2,500 people to the picnic grounds, and the day was pronounced a success by all who attended.

In Order to Handle the Increased volume of business since placing on the market the C. H. Wheeler improved surface condenser and the Mullen suction valveless air pump, the C. H. Wheeler Manufacturing Co., Philadelphia, has found it necessary to make a large addition to its shops. It has also installed a quantity of new tools, many of which were built especially for the work. Feeling further expansion necessary, the company has plans under consideration, which when completed, will double the present capacity. The company also reports an unusual demand for its boiler feed and underwriter fire pumps.

The Cahall Swinging Manhead Support. An attachment for supporting manheads has been patented by the Cahall Steel Specialty Company, Monadnock Building, Chicago, Ill. This device is easily applied to any boiler. Manheads weighing from 50 to 150 pounds are very unweildy and difficult to handle. When a man desires to enter a boiler fitted with the Cahall manhead support, all that is necessary is to remove all nuts and yokes from the bolts and push the manhead into one side of the opening where it occupies but little room. In closing, the operation is reversed. During the process the operator is subjected no bodily strain, inconvenience or danger from scalding. One of the principal annoyances in the care of boilers is the difficulty of making the manhead joint tight after cleaning. With careless boiler tenders the joint is seldom tight, and there is a constant leakage that eventually leads to corrosion, and if neglected long enough may indirectly be the cause of an explosion. To apply this attachment to boilers that are now in use, it is not necessary to secure new manhead plates. The attachment consists of three pieces with the necessary bolts and pins, and may be readily attached to any style of manhead and boiler by using three standard machine bolts.

The "Washington" and "St. Louis" Equipped with Davidson Pumps. Referring to the recent successful trials of the United States Cruisers "Washington" and "St. Louis" it is of interest to note that both of these vessels are equipped entirely with Davidson pumps, manufactured by M. T. Davidson 141 Broadway, New York.

A visitor to some of the great power generating plants of the country cannot fail to be impressed with the elaborate devices designed for utilizing all of the energy given up by the fuel. This is accomplished in two ways: First in the selection of efficient power units (boilers, engines, and dynamos); and second in the use of heat saving or fuel economizing apparatus. The development of the steam engine and steam turbine has been brought to such perfection that there is little chance of increased economy in steam consumption. However there is plenty of opportunity for saving the heat which for many years in the past has been allowed to escape through the tall chimneys of power plants. The apparatus for utilizing the waste heat from the boiler is called a fuel economizer. This consists of a group of pipes which are arranged so that the hot gases must pass through them before being discharged into the air. In these pipes the feed water is circulated before going into the boiler, which results in the water being heated to a very high temperature and consequently requiring less heat in order to be converted into steam, thereby greatly increasing the capacity of the boilers. Another advantage of the economizer is that it causes all the soot and other solid material in the gases to be deposited, which does away with all smoke nuisance. Thus it is seen that by using the proper means very little heat need be lost. There is still another way to save money in power generation and that is by the use of mechanical or fan draft. This system consists of blowing air under the boiler grates by means of a fan or exhausting the gases from above the fire, which produces any desired draft independent of chimneys and weather conditions, and at the same time not only does away with the tall and expensive chimneys, but allows the use of the poorest grades of coal. Many of these modern systems of fuel economizing have been designed and installed by the B. F. Sturtevant Co., Hyde Park, Mass.

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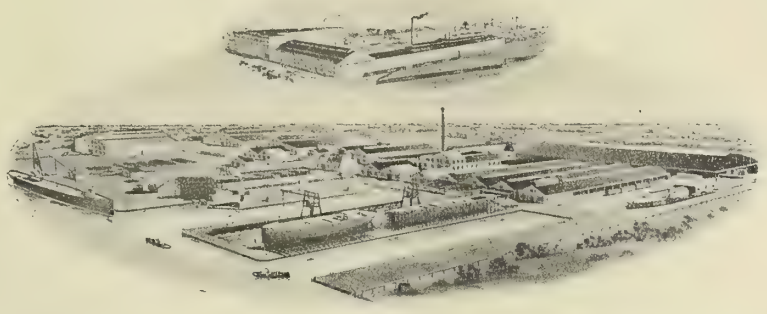

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DAVIDSON PUMPS ON THE BATTLESHIP "CONNECTICUT". The United States Battleship "Connecticut", which is being built by the United States Government at the Brooklyn Navy Yard, is equipped with Davidson main air pumps, feed pumps, fire pumps, bilge pumps, etc., manufactured by M. T. Davidson, 141 Broadway, New York.

"THE ONLY PUMP GOVERNOR on the market using oil in water pressure cylinder" is manufactured by the Ideal Automatic Pump Governor Company, 15 Whitehall street, New York City. The piston and water pressure cylinder are protected from corrosion and sticking fast when the pump, that it is installed on, is pumping salt water or other liquids that leave a deposit. The body of oil in the pipe and cylinder, floating on top of the water or other liquids being pumped follows the piston in both of its upward and downward strokes, thoroughly lubricating and protecting the wearing surface of the cylinder walls and piston from all liability to be corroded or stuck fast when called on to act. The greatest fault, with automatic pump governors, is that they corrode and stick fast and thereby fail to work when needed."

ALBANY GREASE is claimed by the makers, Messrs. Adam Cook's Sons, 313 West Street, New York City, to be an efficient remedy for all lubricating troubles. More than this the claim is substantiated by thousands of testimonials which have been received from engineers and others who have used this well known compound with great satisfaction where conditions were previously most unsatisfactory. As an instance, A. D. Adams, Engineer for Maxfield Mine, Argenta, Utah, writes: "For sometime we have been having trouble with the bearing on our turbine water wheel running hot, and occasionally the babbit melting. This wheel develops 280 H. P. with perpendicular shafting. The belt from pulley on wheel to line shaft, is run on ¼ twist, consequently there is a great strain on the wheel shafting. Albany Grease No. 3 is now being used, giving entire satisfaction. I mention this, because after trying all other makes of grease, oil, etc., I find your Albany Grease to do the work."

THE MOST POWERFUL FLAME IN THE WORLD is claimed for the Hauck burner by the manufacturers, the Oil-Fuel Engine Company, 225 South street, New York City. Recent tests of efficiency made by naval architects and marine engineers, boiler, iron and copper manufacturers, and metal experts, are said to have indicated that this burner will supersede all former methods of heating or forging, metal brazing, annealing, bending, blacksmithing, coppersmithing or other metal construction. "The results are obtained by placing crude oil in a tank under pressure of from 15 to 100 pounds per square inch, connecting oil tank with a line or tubing, which conveys the fuel oil to the burner, and there is formed into a heavy gas, giving a strong blue flame and the most intense heat known to modern science. This forge can be installed in any stationary or portable fixture, and is suitable for all classes of work. In boiler shops the burner is adapted for laying on patches, heating crown sheets, flanging, etc. Shipbuilders will find it useful for removing propellor wheels from crank shafts and straining and bending on board ship. In foundries, it is used for brazing and filling castings and melting metals, while railroad companies will find it useful for bending engine frames and rails, heating locomotive tires, etc. The degree of heat may be regulated instantly, and it is not necessary to employ a skilled mechanic to operate it. Absolute safety is guaranteed."

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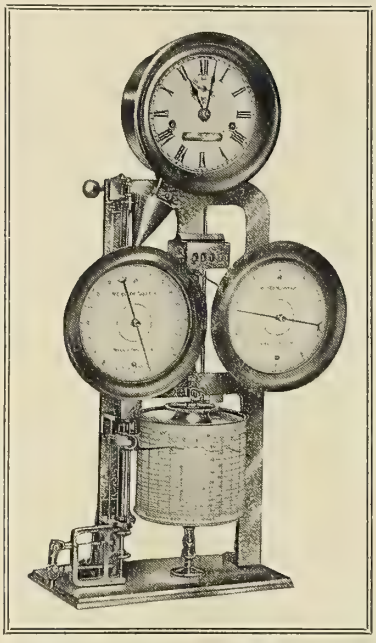

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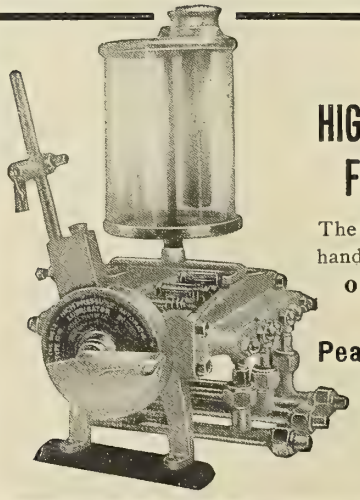

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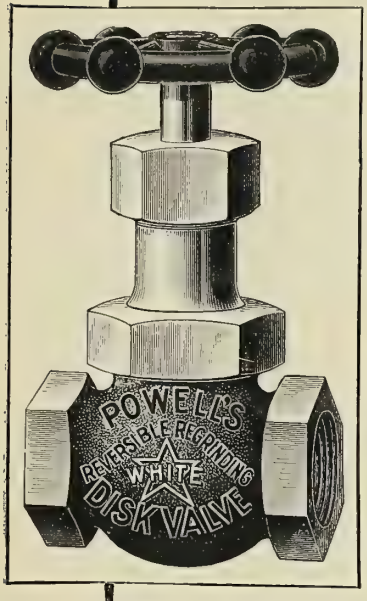

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Opening of Term, October 2nd.

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The Lebanon Chain Works, Lebanon, Pa., has bought out the Empire Chain Works and the Chilcott-Evans Chain plants located in Pittsburg, moving the contents to Lebanon and installing them as part of the company's new shops. The Lebanon Chain Works first became prominent when they secured the order for the ship cables, the heaviest ever made, that were used for the Great Northern Steamship Company's *Minnesota* and *Dakota*. These cables measured 6000 feet in length, and each link weighed 165 pounds. In testing the chains, they withstood a strain of 549,500 pounds without fracturing a link or starting a weld, but breaking the jaw and feed of the testing machine. This test exceeded the requirements by 55,020 pounds.

A Test of Falls Hollow Staybolts, made by the Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has been made by the Baldwin Locomotive Works, showing a tensile strength of 50,833 pounds per square inch; elongation, 32.33 percent; reduction of area, 49.10 percent; threading and double bending tests O. K. Regarding the vibratory test, the threaded specimens stood an average of 7713 revolutions when subjected to a deflection of 3-32 of an inch and a tensile load of 4,000 pounds. The etching test shows the iron to be slab piled. The Baldwin Locomotive Works states that this staybolt iron conforms to its specifications in every respect.

Life floats, life boats, and life preservers are made by the Carley Life Float Company, F 4 and 5 Produce Exchange Building, New York City. It is claimed for the company's life float that it is non-sinkable, non-capsizable and indestructible. A 6 x 10-foot float weighs five hundred pounds. It is constructed of copper, cork, canvas and cordage. It will carry twenty-five persons on the inside, besides affording support to many others on the outside. No tackle or davits are required to launch it, and it may be handled easily by man or woman. At a recent test given by a special board of Steamboat Inspectors, the Carley Life Float was the only type of raft that carried more persons than rated for by the Inspection Rules. It has been approved of and recommended by the United States Board of Supervising Inspectors of Steam Vessels, and it is used on vessels of the United States Navy and Russian Navies.

Sweet's steam and oil separators. The accumulated moisture around the walls of the steam pipe is caught by the upper edge of the cone and carried down back to the lining of the water chamber. The current of steam entering the separator impinges upon the conical surface composed of a solid plate covered with a sieve, through which water may freely pass, but from which it can not readily escape. Passing through the sieve and depositing on the solid surface of the cone, this water is carried by the conductors to the water chamber. By means of the cone, the column of steam is changed to an annular ring which is comparatively thin even while the full area of the pipe is maintained. The steam upon the outside of this ring comes in contact with the lining of the shell which has a sieve of the same character, and which catches and entrains any water which may be contained in that portion of the current. There is also provided a lip at lower edge of inverted cup which leads all the water that may adhere to its surface down to the conductors of the water chamber. The current of steam passes through the passages and is subjected to a whip-snapping action which will throw off any moisture that has not been caught by the surface over which it has passed. The diaphram prevents the steam from picking any water out of the water chamber. This separator is made by the Direct Separator Company, Syracuse, N. Y.

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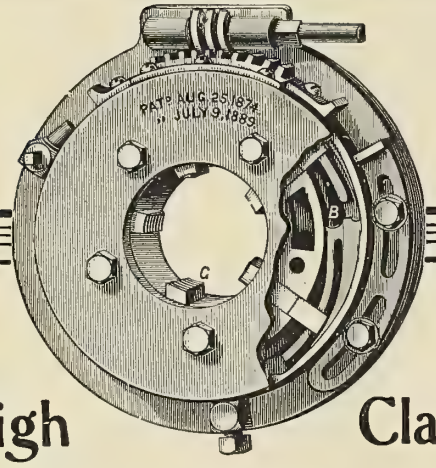
"BUILT FOR HARD WORK" is the claim made for the pipe thread- and cutting machines made by the Armstrong Manufacturing Company, Bridgeport, Conn. A free catalogue will be sent upon request.

LARGE FOREIGN ORDERS for Falls Hollow Staybolt iron. The Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio, has received large orders for its staybolt iron from the Royal Railway of Saxony; from New Zealand Government Railways; the Farro Carril Payta Piura Railway of Peru, and from three railways in Japan. The manufacturers of these staybolts report that they are furnishing more than one hundred leading railways of the United States, Canada and Mexico with their iron for repair work, and also large quantities to the Baldwin Locomotive Works for new equipment in which Falls Hollow Iron was specified.

THE ENGINEERING SPECIALTY COMPANY has been organized at Meridan, Conn., and has located its factory at 256 South Broad street, having purchased the plant and business of the Paterson Electric Company. One of the chief specialties which this company manufactures is small polishing and grinding motors. Donald M. Bliss is the President and Chief Engineer of the company. Mr. Bliss was for many years the chief engineer and motor superintendent of the Holtzer-Cabot Electric Company, Brookline, Mass.

THE STEERING ENGINES for the United States Battleships *Kansas* and *New Hampshire* and the armored cruiser *Washington* were made by the W. D. Forbes Company, 1300 Hudson street, Hoboken, N. J. This company makes a speciality of steering gears of all sizes; also blowers and engines, circulating pumps and engines, and engines for direct connecting to electric generators. Those interested should not fail to send for a copy of this company's catalogue.



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Electric traveling hoists and trolleys are described and illustrated in a catalogue issued by the Niles-Bement-Pond Company, 111 Broadway, New York city. This catalogue states: "The economy of handling heavy material by electric traveling cranes is now so universally accepted as to be beyond question, but for the moving from place to place of loads weighing between one-half and five tons, the use of electric traveling cranes is not as universal as it should be. As the ordinary type of crane is frequently too expensive to justify its installation for this service, we have designed a line of electric traveling trolleys and hoists which are illustrated. These trolleys and hoists run on a single I-beam, making it possible to install them in places where it would be impossible to arrange for crane runways; the expense, too, of putting up the I-beam is comparatively slight. For loads above five tons, it is usually preferable to use our standard electric traveling cranes, which are described in our large crane catalogue."

Draftsmen and those who are interested or connected with drafting, should send to the Keuffel & Esser Company, 127 Fulton street, New York, N. Y., for a four-page circular which is being distributed regarding Duplex drawing paper No. 50. This circular contains much information regarding this paper and inclosed with it are samples of "Colonna" tracing paper, something new which this company is now offering to the trade. It is extra fine, strong, and very transparent paper, which takes ink, pencil, and colors well, stands considerable erasing, and its bluish tint makes it excellent for blue printing. It serves in many cases as a good substitute for tracing cloth. The company is also sending out samples of Duplex detail drawing paper, which has been one of the standard products of this company, having been first put on the market in 1881, and which is generally recognized as a most excellent detail drawing paper. It is tough, hard paper with resistant surface, and stands unlimited erasing, and is claimed to be equally well adapted for pencil, ink, and colors.

Marine and stationary fuel saving and smoke-consuming appliances are the subject of an illustrated 22-page catalogue issued by the James Reilly Repair and Supply Company, 229 West street, New York city. Regarding the company's "Multicoil" marine feed water heater, the catalogue states that this feed-water heater consists of a cylindrical steel shell with bumped steel heads fitted with an annular gun-metal manifold top and bottom, the two being connected by a series of helical copper coils by means of ground joint unions. The feed inlet leads to the bottom manifold and feed outlet leads from upper manifold. The auxiliary exhaust line is led to the top of the heater and the drain connection at bottom branches into pipes, one of which leads the condensation to the feed tank, the latter pipe being controlled by a valve, and the other branch leads to the main engine condenser and is fitted with an automatic relief valve which maintains a pressure of the exhaust in the heater shell. Under regular working conditions the feed water in the coils of the heater will absorb the heat of the auxiliary exhaust and discharge the condensation to the feed tank. In this manner the main condenser will be entirely relieved of the auxiliary exhaust. The "Multicoil" feed-water heaters are stated to be absolutely automatic, and after being adjusted they require no further attention. The catalogue gives a long list of steamships and yachts on which the company's feed-water heaters are in use.

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Extra heavy valves are described and illustrated in a catalogue issued by Jenkins Bros., 71 John street, New York city. "To meet the constantly growing demand for high grade valves suitable for extra heavy pressures, we are now prepared to furnish both brass and iron body valves, suitable for working steam pressures up to 300 pounds. Our extra heavy brass, globe and angle valves when placed on the market several years ago met with such favor in the hands of users of high-pressure steam that we were induced to make further additions to this class, with a result that we have designed a line of extra heavy iron body valves which are in our judgment superior to any valves of their class in the market."

One of the most complete catalogues of valves, indicators, lubricators and general steam engine and boiler appliances that we have ever seen has been issued by the Star Brass Manufacturing Company, 108 East Dedham street, Boston, Mass. This is a fully illustrated, cloth-bound volume of 316 pages. The preface states that the company's goods have found their way to every quarter of the globe, and are adopted as standard by a number of the largest railway systems, and are used exclusively in the most prominent electric and power stations, factories and mills. In marine use they are to be found upon some of the largest transatlantic steamers and on battleships, cruisers, torpedos, etc., belonging to the United States navy. No purchaser of steam specialties should be without this catalogue.

The Almy sectional water tube boiler made by the Almy Water Tube Boiler Company, Providence, R. I., is described and illustrated in a handsome catalogue of 68 pages containing pictures of about two hundred and fifty steam yachts of all sizes, ferry boats, coasting vessels, excursion steamships and the like, which are fitted with Almy boilers. In designing these boilers, the company had in mind simplicity of construction, perfect circulation, large combustion chamber, greatest amount of heating surface possible in the fire box, the latest and most efficient method of separating steam from water, water in sufficient quantity to prevent excessive fluctuation, mud drum to receive precipitation, expansion provided for every part, accessibility of all parts for cleaning and repairing, small space required, non-explosibility, light weight, strength and durability. A free copy of this catalogue will be forwarded to all readers mentioning INTERNATIONAL MARINE ENGINEERING.

"Superheated Steam" is the title of a booklet issued by the Power Specialty Company, 111 Broadway, New York city. This company manufactures the Foster patented superheater which consists of a series of straight elements which are generally placed parallel to each other. They are joined at one end by manifolds or connecting headers, and at the other end return headers. The elements consist of straight seamless steel-drawn tubes on the outside to which are fitted a series of annular gill flanges placed close to each other and forming an external covering of cast iron for the protection of the bodies against the action of the heated gases. The catalogue states that the Foster superheater is the result of long experience. The parts exposed to the direct action of the fire are made of cast iron, as it is stated that this metal is best adapted to resist the action of great heat. Although the external heating surface is of cast iron, this is backed up by a lining of wrought steel which forms the bodies of the elements.

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TOOL STEEL THROUGHOUT

IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS

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LOOK FOR SPEAR ON UPPER JAW

WALWORTH MFG. CO. Sole Manufacturers, BOSTON, U.S.A.
FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

The "NewYankee" drill grinder and other tools are described and illustrated in catalogue No. 90 issued by Wilmarth & Morman Company, Grand Rapids, Mich. This catalogue is handsomely illustrated and all persons interested in the subject of drills should send for a copy.

Anyone interested in heavy machinery and machine tools should write the Niles-Bement-Pond Company, 111 Broadway, New York City, or 23 Victoria street, S. W., London, England, and ask to be put on the free mailing list of the *Progress Reporter* issued by the above mentioned company every few weeks.

A bulletin of the American School of Correspondence at Armour Institute of Technology, Chicago, Ill., is devoted to the department of mechanical engineering. This is a volume of about 80 pages, and any one contemplating a course in mechanical engineering by correspondence will have a free copy sent to him by mentioning this magazine.

Asbestos fire felt covering, composed of asbestos fiber, loosely fitted together like hair felt, in such a way as to combine a large number of small air holes or spaces which keep in the heat and by which great insulating efficiency is assured, is described in an illustrated folder issued by H. W. Johns-Manville Company, 100 William street, New York, N. Y.

Johnson motors are illustrated and described in a catalogue issued by the Johnson Motor Company, Chester, Pa. This catalogue states: "We are putting this motor on the market after three years experimenting. The special features of our machines are simplicity in construction and absence of all adjustments."

Users of oils for cleaning, lubricating and preventing rust, should send to William F. Nye, New Bedford, Mass., for information regarding "Nyoil," a product which is of the highest quality and has made a great reputation for itself. The fact that Mr. Nye manufactures most of the fine watch and clock oils used throughout the world, is an indication as to the quality of this special product "Nyoil."

Punching and shearing machinery, rolls and other machine tools are described and illustrated in a 56-page catalogue issued by the Cincinnati Punch & Shear Company, Cincinnati, Ohio. The catalogue states that it is the company's constant effort to study the requirements of modern shops and their practice, that it may better serve its customers and furnish them equipment particularly adapted to their use.

"A Little Treatise on the Use of Glue for Marine Purposes" is the title of a booklet issued by Siemon & Elting, 194 Front street, New York city. A copy of this booklet, which will be sent free to any reader mentioning International Marine Engineering, should be in the hands of every marine user of glue, as it contains minute directions for the use of glue on board ship for such purposes as paying decks, joining timbers, planking boats, etc.

Unions for Steam Pipes, "an illustrated description of the several varieties", is the title of a booklet distributed by the Joseph Dixon Crucible Company, Jersey City, N. J. This book is a reprint from *Graphite* of articles by W. H. Wakeman and contains much information of interest to steam users. A free copy will be sent by the Joseph Dixon Crucible Company to readers who will mention International Marine Engineering.

YOUR INVENTION MAY BE WORTHY OF A PATENT

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Electric-air rock drills are described and illustrated in catalogue No. 383 issued by the Ingersoll-Rand Company, 11 Broadway, New York City.

Marsh boiler feed pumps are described and illustrated in a catalogue issued by the American Steam Pump Company, Battle Creek, Mich.

A colored photograph of the steam tug *Lottie,* in use at Apalachicola, Fla., is being distributed by the manufacturer, the Marine Iron Works, Station A, Chicago, Ill. This company makes a specialty of steam tugs and similar vessels.

Lion brand alloys and metals of various kinds are described in pamphlet No. 3, distributed by Messrs. George E. Blackwell Sons & Company, Limited, The Albany, Liverpool, England. The alloys referred to are produced by the electric process.

Rockwell fuel oil burning appliances are described and illustrated in catalogue F issued by the Rockwell Engineering Company, 26 Cortlandt street, New York City. The company guarantees the satisfactory operation of every furnace sold.

The monthly stock list of the Cincinnati Iron Store Company, Cincinnati, Ohio, should be in the hands of every user of beams, channels, angles, rails, plates, bars, power punching and shearing machinery, angle shears, drills, lathes and other heavy iron and steel machines and material.

Morison suspension furnaces are the subject of a handsomely printed and profusely illustrated cloth bound catalogue issued by the Continental Iron Works, Brooklyn, N. Y. These furnaces are known the world over and this catalogue should be in the hands of every user of furnaces.

"The Penberthy Engineer and Fireman" published by the Penberthy Injector Co., Detroit, Mich., is the title of an illustrated monthly magazine containing many articles of interest to engineers and firemen. The subscription price is 25 cents per year, and a free sample copy will be sent to any person mentioning this magazine.

In the June number of *The Valve World,* issued by Crane Company, Chicago, Ill., is begun an interesting article on the history of the fittings business, by R. T. Crane. Free copies will be forwarded to readers who will mention International Marine Engineering.

Coverings for High Pressure and Super-Heated Steam Plants, "J-M." Asbestos Roofing, Asbestos Fire Felt Covering, Asbestocel Covering for Heating Systems and Keystone Hair Insulators, are the titles of a number of pamphlets issued by the H. W. Johns-Manville Company, 100 William street, New York City.

The Hanna riveter has a special catalogue, known as No. 3, a second edition of which has just been issued by the Hanna Engineering Works, 820 Elston avenue, Chicago. It comprises nearly forty pages, and contains a large number of illustrations giving a great deal of detailed information regarding these riveters and their uses, together with points regarding the subject of riveting and the care of riveters A free copy will be sent to any of our readers who will write to the Hanna Engineering Works and mention this magazine.

Punches, shears, bending rolls, riveters and other special machinery, manufactured by the George Whiting Company, 156 North avenue, Chicago, Ill., are illustrated and described in a fifty-page catalogue which this company is distributing. The catalogue is 5 by 9 inches in size and has an average of nearly two engravings to a page, together with the necessary accompanying text. Every reader of International Marine Engineering who has use for any of these tools should send for a copy of this catalogue and mention this magazine.

A combined punch and shear is described and illustrated in a folder issued by Joseph T. Ryerson & Son, Chicago, Ill. The body of the machine is in one piece, thus greatly strengthening it. All pins and king bolts are made of steel. The mandrel, which holds the punch, is made square to avoid turning or spoiling of dies when square or irregular shaped punches are used. Angle shear attachment can be furnished when ordered, at extra cost. In punching, the lever works towards the front, and in cutting towards the back of the machine.

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BUSINESS NOTES.

Sails for racing yachts, made of the best cloth, manufactured especially for the firm, are advertised by Wilson & Silsby, Rowe's Wharf, Boston, Mass. This firm has made the sails for many famous racing yachts both in America and Europe.

The London Hardware Exchange.—The proprietors of the *Hardware Trade Journal*, 8 Finsbury Square, London, E. C., have erected a new building, six stories in height, within a few minutes walk of the Bank, which is to be known as the London Hardware Exchange, and which will undoubtedly become the hardware center of the United Kingdom. The building will be so arranged that manufacturers from any part of the world can have an exhibit of their wares in this building at prices ranging from ten pounds or upward. Included in this charge is the free use of the library, reading, writing and consulting rooms. There will also be in connection with the Exchange every facility for doing business, including a competent staff of hardware salesmen. The facilities of this Exchange will be especially valuable to foreign hardware concerns which wish to be represented in the world's metropolis.

The Time is not far in the Past when the ordinary electric lighting and power plant comprised an engine built by one manufacturer and a dynamo built by another. The responsibility for successful operation was thereby divided, while the difficulties in the way of placing an order and installing the equipment were greatly increased. Even at the present time there are comparatively few concerns in America that build both the engine and the generator. Among these is the B. F. Sturtevant Co., Hyde Park, Mass. "It is a misfortune that this company's world-wide reputation as blower manufacturers has partially obscured the magnitude of its business in engines, motors and generating sets. In fact, however, the B. F. Sturtevant Co. has for years made a specialty of high grade generating sets, with the engine and generator designed each for the other. This company now catalogues no less than thirty-six different sizes and types of units ranging from 3 to 100 K. W. Each is absolutely complete in its parts, being carried upon a bedplate which is common to both. The size and weight of all but the larger sizes are such as to permit of export shipment without separating of parts, so that the machine stands ready for operation as soon as it is unpacked."

The James Reilly Repair & Supply Company, 229 West street, New York city, invites inspection of its recently completed warehouse containing 38,500 square feet of floor space, which it states, is fully stocked with engineers', contractors', electrical and marine supplies, hardware, ship chandlery, etc.

The H. W. Johns-Manville Company, 100 Broadway, New York City, states that it has been meeting with great success in the installation of its "J-M" combination felt coverings of pipes in mines and surfaces exposed to extreme weather conditions. In several instances the company has demonstrated the practibility of carrying steam considerably over a mile, having accomplished this result when engineers considered it an impossibility. The H. W. Johns-Manville Company will be very glad to explain its system fully to any one interested.

The Success of any Portable Tool depends upon its ability to perform the work for which it was designed, with the greatest dispatch and the least consumption of energy; its ease of manipulation and its freedom from liability to break down under hard usage and rough handling. The Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., states that the remarkable success attained by the Duntley portable electric drills has brought out a large number of requests for detailed mechanical and electrical descriptions of the construction of these tools. This company has prepared such a description, and will be very glad to forward it free upon application to readers who will mention this magazine.

Discipline and Good Equipment the best safeguards. Much favorable comment is heard regarding the good work done at the recent fire on the steamer *Kaaterskill* of the Catskill Evening Line, which was reported as serious, but which however did but slight damage owing to the splendid discipline of the crew and the effective service rendered by the Davidson fire pump. This pump, by the way, was put in the vessel when she was originally built 25 years ago, and shows that there need be no fear from conflagration on shipboard if the crew is watchful and the facilities for fighting fire are such as can be depended upon. It was made by M. T. Davidson, 141 Broadway, New York.

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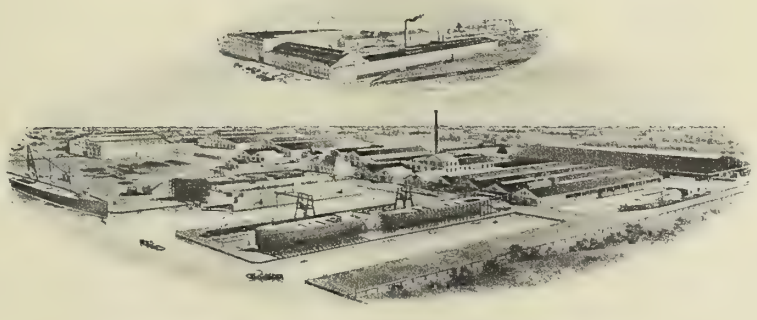

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"It is hard to believe," says the Carley Life Float Company, Produce Exchange Building, New York City, "that two men, either passengers or crew, can launch a Carley life float—it is true, however. It is light and requires no davits or tackle. It is always right side up, and occupies less deck space per person allowed than any other type of raft. See page 67, Rule 3, Section 19, 1906 Rules and Regulations of the Board of Supervising Inspectors."

The Boston Offices of the Niles-Bement-Pond Company and Pratt & Whitney Company, 111 Broadway, New York City, have been removed from Pearl street to larger and handsomer quarters on the eighth floor of the Oliver Building, Corner Milk and Oliver streeets. The policy of these companies is to dispense with show rooms, the variety of both heavy and light machine tools and cranes built by their works being too great to permit exhibition.

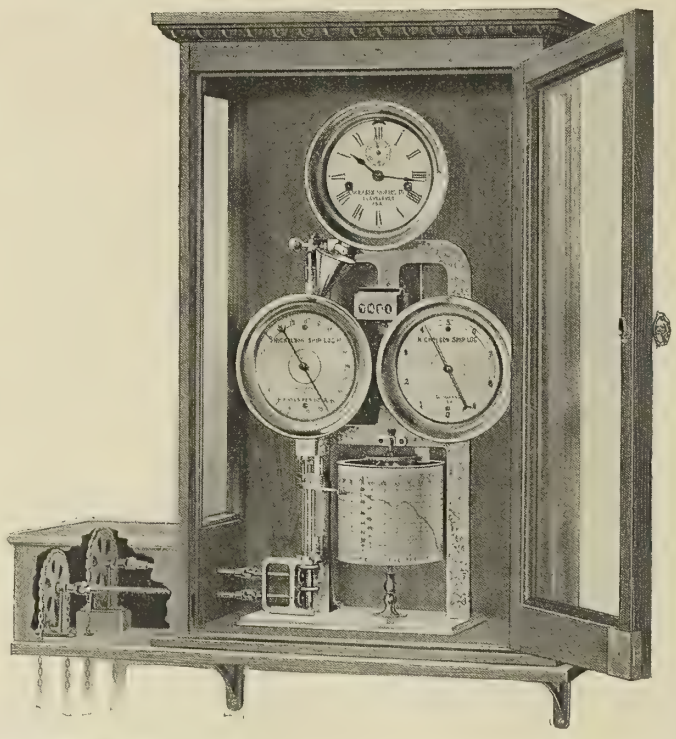
A Complete Line of Forges is built by the B. F. Sturtevant Co., Hyde Park, Mass., embracing both the portable and stationary types. The former are particularly adapted for local repair work and are operated by hand, by belt or by blast from independent blower. The stationary forges are larger, are provided with either down-draft or up-draft hoods and are substantially built of cast iron, except in the case of the largest sizes which are heavy steel plate. The tuyeres in the Sturtevant forges are carefully designed to prevent clinkering and give the maximum blast.

It may be of interest to readers of International Marine Engineering to know that the works of John V. Rice, Jr., & Company, manufacturers of gasoline engines, Bordentown, N. J., on the banks of the Delaware, six miles below Trenton, are located on a portion of the site formerly occupied by Joseph Napoleon Bonaparte, brother of the first Napoleon. The grounds are now known as Bonaparte Park. The Rice works thus beautifully located are said to be equipped with the best modern machinery procurable.

Every launch and yacht builder and owner should send for a copy of a small catalogue just issued by Wilcox-Crittenden & Company, Incorporated, Middletown, Conn., and devoted to special fittings of the latest design for vessels and motor boats, etc. The several fittings include galvanized steel rudders, spray hood attachments, galvanized tiller chains, galvanized drop-forged oar-locks, launch steering wheels, etc. This folder can be had free by mentioning International Marine Engineering.

Franklin Williams, manufacturer of bronze unions, 39-A Cortlandt street, New York city, states that an important detail when ordering pipe unions is to include the following among the specifications: "All unions to be extra heavy, both ends hexagonal, tapered seat, ball nose, ground joint, 'Tuxeda' bronze, or equal thereto in all respects." The manufacturer states that the "Tuxeda" unions will hold the highest pressure superheated steam joint tight indefinitely, and that he especially recommends them for drips, coils, oil systems, pumps, compressors, brass pipes, gas and acid work.

You do not have to guess at the speed of your vessel if equipped with a Nicholson ship log, is the statement made by the manufacturer, the Nicholson Ship Log Company, 204 Superior street, Cleveland, Ohio. The exact speed of the moment is constantly before you on a dial and is recorded on a paper chart. The distance traveled is correctly shown on a counter and the log is guaranteed to register within two percent. There is no operating expense. Wind the clock once a day, and it will do its work automatically. Catalogues and full information will be sent upon request.



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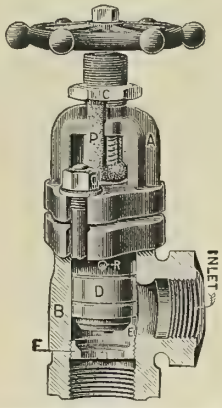

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This treatise is the most complete published for the practical engineer, covering as it does a course in mathematics, the management of marine engines, boilers, pumps, and all auxiliary apparatus, the accepted rules for figuring the safety valve, as well as the very many other subjects.

The book is divided into two parts: Part I, Construction; Part II, Operation; it contains 700 pages: 807 questions with carefully prepared answers, with nearly 300 explanatory foot-notes.

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Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word. No advertisement will be inserted for less than 75 cents (3 shillings) for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Navy engineer officer; Graduate of Naval Academy; young, experienced; desires civil position, has had eleven years' experience with man-of-war machinery. Address Position, care of International Marine Engineering, 17 Battery Place, New York City.

Light draft, powerful steamboats of the stern paddle wheel type are built by the Marine Iron Works, Station A, Chicago, Ill. This company states that it has had exceptional opportunities to study the practical values of the several classes of these dependable light draft river boats, and that it solicits correspondence with parties in the market for such boats.

Babcock & Wilcox trade mark. A decree has been entered in favor of The Babcock & Wilcox Company, New York city, in which the trade mark of the Babcock & Wilcox Company is sustained as good and valid. It consists of the word "STEAM" accompanied by a representation of the type of engine known as the "Aeolipile of Hero," which consists in part of a sphere.

The Independent Pneumatic Tool Company, First National Bank Building, Chicago, Ill., has appointed Lake, Hale & Company, 11 Front street, San Francisco, Cal., its exclusive Pacific coast representatives. These people will carry in stock a large line of "Thor" piston air drills and reamers, reversible flue rolling tube and wood boring machines, pneumatic riveting, chipping, calking and beading reamers, etc., with suitable spare parts.

The manufacturer of the Selden and Jena packings, Mr. Randolph Brandt, has moved his office from 38 Cortlandt street, where he was located for over 20 years, to No. 70 Cortlandt street. At the same time Mr. Brandt has moved his factory to larger quarters. With new and increased facilities these well known packings will be placed in the hands of engineers in better shape than ever.

Foreign orders recently received by American Ship Windlass Company, Providence, R. I. Four main sheet capstans for Messrs. C. E. Soley & Farrar, Liverpool, Eng. Two double drum hoisting engines for Messrs. J. & A. Jensen og Dahl, Frederiksstad, Norway. One No. 1 towing machine for W. Von Denffer, Swetschnoi Pereulok, No. 2, St. Petersburg, Russia.

The "Viking" gas engine oiler, is stated by the William Powell Company, 2525 Spring Grove avenue, Cincinnati, Ohio, to be the acme of simplicity, besides possessing novel features of merit. A ball valve in the shank takes the shock of the explosion. A large hole admits a good sized spout—filling is quickly done. Filling plug is chained—can't get lost—unscrews easily. Adjusting, regulating, starting and stopping are quick and convenient.

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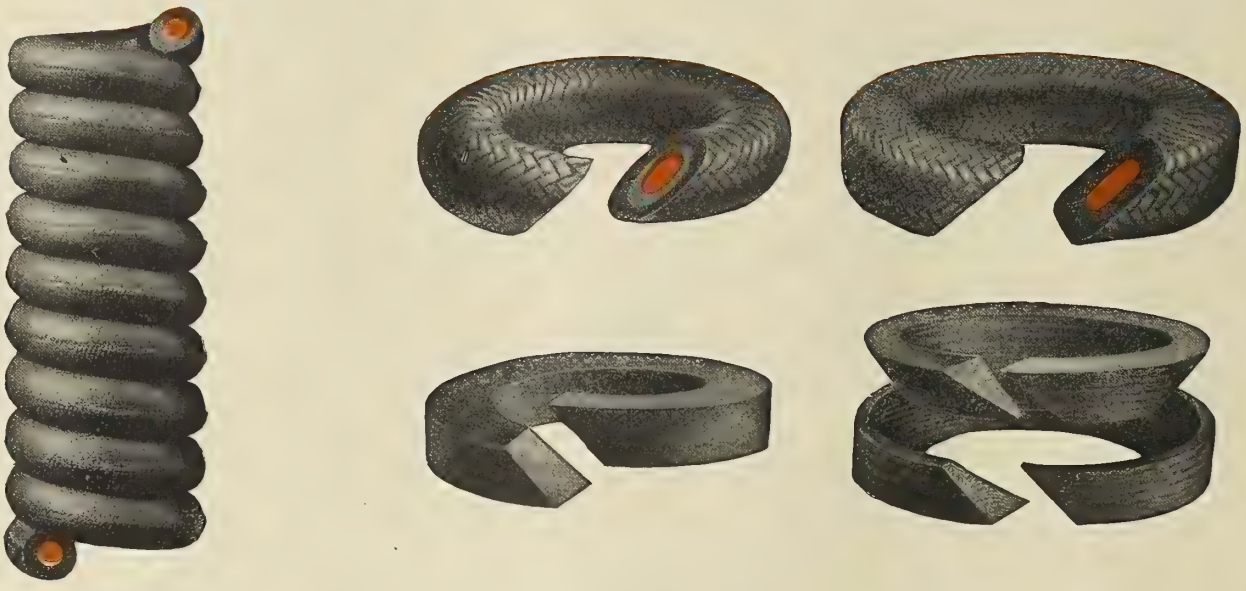

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16 and 18 S. Capital Ave., Indianapolis, Ind.
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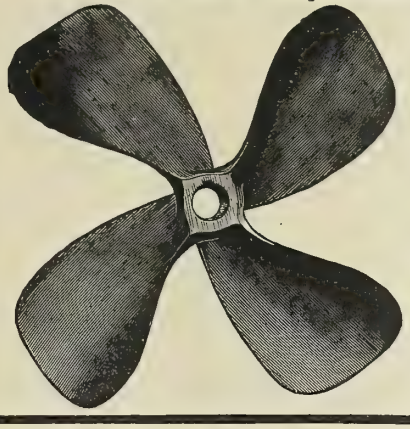
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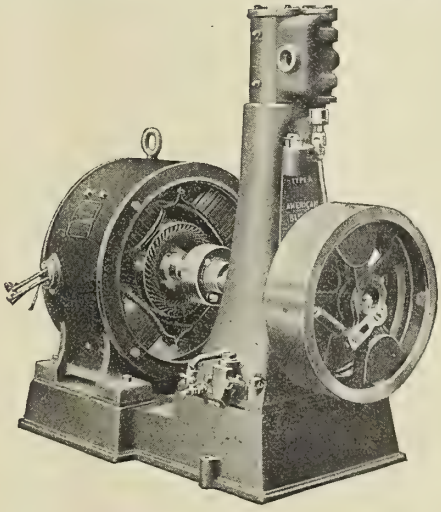
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Ideal for operating generators and all other auxiliary uses aboard ship.
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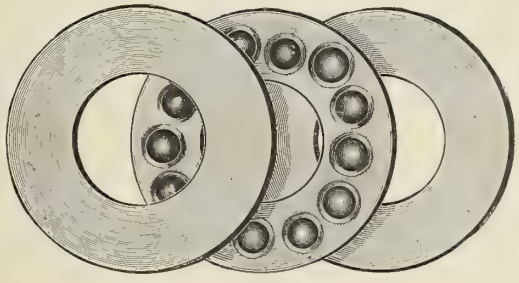
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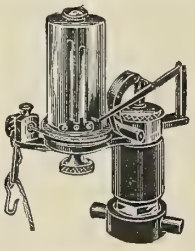

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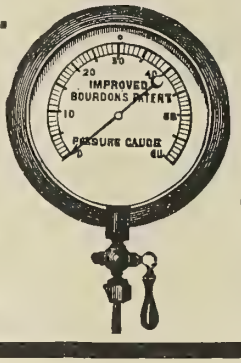

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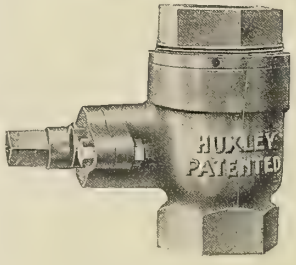

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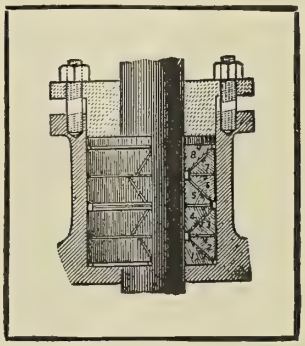

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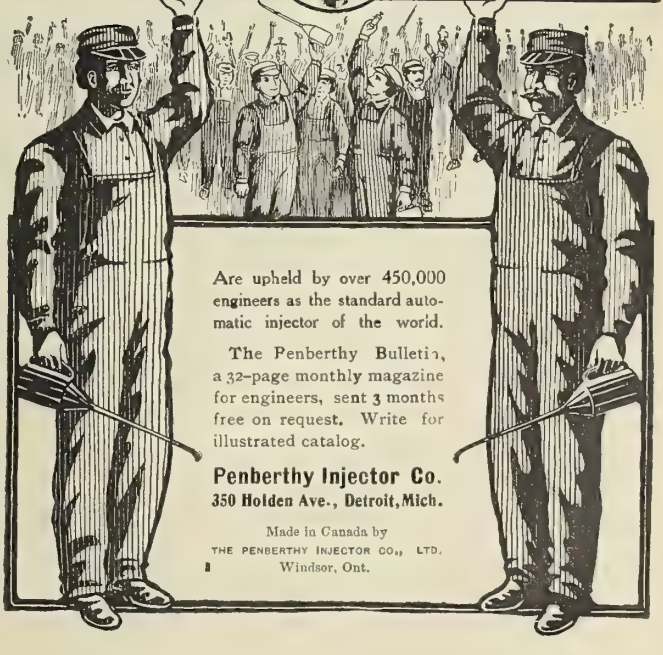

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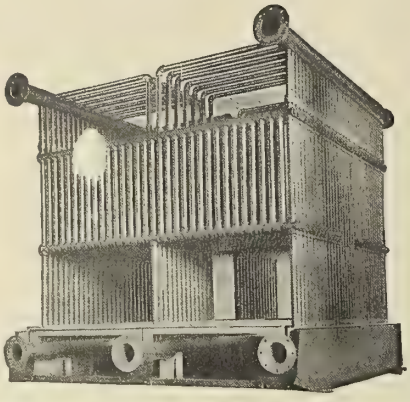

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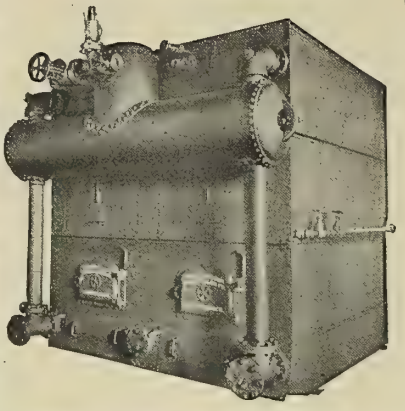

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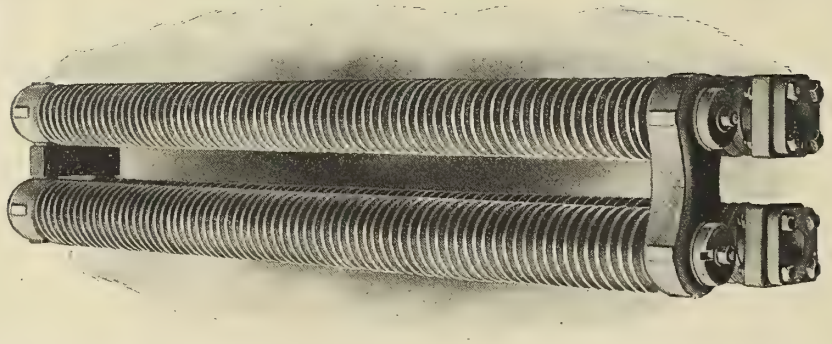

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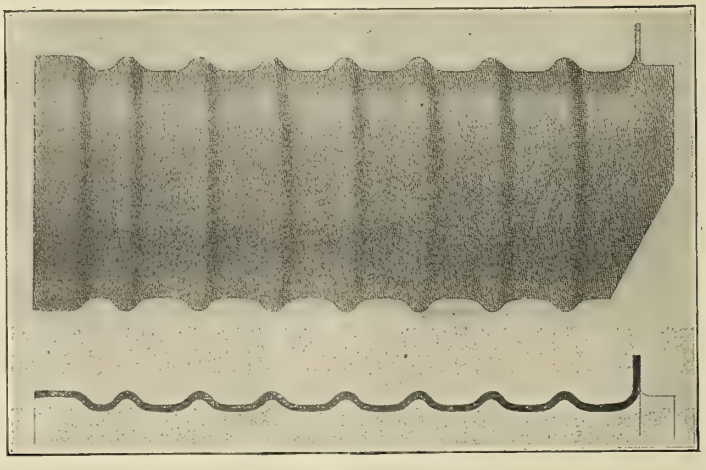

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Keyseat milling machines are the subject of catalogue No. 44, issued by the Newton Machine Tool Works, 24th and Vine streets, Philadelphia, Pa. The catalogue states that they are for rapidly milling keyseats for "feather keys," short "splines" and other work requiring one or both ends rounded up. The company designed a machine for its own work, carrying a horizontal and a vertical spindle. A new design of machine is also illustrated in this catalogue which is used for heavier and longer shafts with the added advantage that the machine may be used for slab milling.

A Handy Speed Table.—The Standard Motor Construction Company, Jersey City, N. J., has issued a neat little speed table relating the time required in covering a nautical mile to the speed in knots and in statute miles per hour. It consists of a celluloid case in which a piece of cardboard may be moved, bringing successively under a slot the various numbers of seconds. These are used in conjunction with numbers of minutes from 1 to 8, and in the corresponding columns are found the speeds in knots and the equivalent in statute miles per hour. At the bottom of the table are a few of the most important physical qualities of gasoline, kerosene, fuel oil, alcohol and water. A free copy will be forwarded to readers who mention International Marine Engineering.

"The Making of Thermometers" is an illustrated booklet published by the Hohmann & Maurer Manufacturing Company, Rochester, N. Y., which will prove interesting reading to all users of thermometers. It traces the history of thermometer making from the earliest crude and inaccurate device, consisting of a glass tube and bulb, the open end of the tube being immersed in a cup of colored liquid (the air in the bulb having first been partly expelled) down to the present accurate and highly specialized instruments made by the Hohmann & Maurer Company. It will surprise readers not familiar with the manufacture of thermometers to hear that in drawing the thermometer tubes the "drawings" of molten glass manipulated by one workman may exceed 300 feet in length.

Fine Mechanical Tools, manufactured by L. S. Starrett Company, Athol, Mass., are the subject of catalogue No. 17 this company is distributing. This is one of the most complete tool catalogues which we have ever seen. It contains two hundred pages and several hundred illustrations, and should be in the hands of every engineer, boiler maker and user of precision and mechanical tools of every kind. This catalogue is carefully indexed, and in it one may find listed a vast number of tools used by every mechanic and engineer, besides many labor saving devices of various sorts. The company makes a specialty of gages, micrometers, rules and squares, and manufactures and carries in stock steel tapes, ball points, calipers, dividers, center punches, jack screws, levels, plumb bobs, screw-drivers, speed indicators, straight edges, tables, test indicators, transits, etc. A free copy of this catalogue will be forwarded to any reader who will mention this magazine.

Bulletin No. 18, issued by the Mechanical Branch of the Association of Licensed Automobile Manufacturers, 7 East 42d street, New York City, is devoted to the standard for hexagon head screws and castle and plain nuts. The preface states that the present United States standards for bolts, nuts and screw threads were established by the United States Navy Department in 1868, and that these standards were pre-eminent for many years, but that during recent years the manufacturers of fine machinery have found that for a large portion of their work the United States standards for pitch threads have been too coarse and the dimensions of heads and nuts too large. In order to secure satisfactory construction, special fine pitch screw threads and smaller nuts have had to be made. The number and variety of these special threads and nuts has finally become such that great confusion and expense have been caused. To overcome this the Association of Licensed Automobile Manufacturers has adopted a new screw standard which is herewith set forth.

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"How to Beat the Iceman" is the subject of a folder issued by the Brunswick Refrigerating Company, New Brunswick, N. J., describing the Brunswick refrigerating machines.

The H. W. Johns-Manville Company, 100 William street, New York City, manufacturer of asbestos and magnesia products; asbestos roofings; packings; electrical insulating materials; fuse devices; fire extinguishers and electrical railway supplies, is distributing a large quantity of literature descriptive of its products. Among those recently sent out are folders describing "The Advantages of J-M. Asbestos Roofing;" "The Manville Fire Extinguisher;" "Pertinent Paragraphs Pertaining to Packings;" "Fire Protection for the Home;" "Victor Combination Meter;" "Insulation of Underground Pipes Conveying Steam and Hot Water;" "Engine Room Economy;" and "Mobilene Sheet Packing." Any or all of these publications will be sent free to readers mentioning this magazine.

Buffalo Forge Co., Buffalo, N. Y., has just issued catalogue No. 97, describing the Buffalo air washer and humidifier. Although the company has manufactured this apparatus for several years, this is the first catalogue issued that gives a full and complete illustrated description of the device. In addition to showing illustrations of the apparatus itself, the catalogue shows plain views of buildings on which is indicated the manner of installing the humidifier in connection with the fan blowers and other apparatus used in a ventilating plant. A method of determining the amount of moisture present in the air as well as the process of eliminating any excess is fully explained. In the back of the catalogue are shown illustrations of the company's blowers and exhausters as well as pumps and the apparatus used in connection with its heating and ventilating system.

The B. F. Sturtevant Co., Hyde Park, Mass., has issued Bulletin No. 138 in its Engineering Series descriptive of its centrifugal exhaust heads. Their action depends upon the fact that centrifugal force is proportional to the weights of the bodies in motion. As water weighs nearly 1,600 times as much as exhaust steam, the effect of the centrifugal force is to throw it outward with nearly 1,600 times the force exerted on the steam. This process is applied in the Sturtevant head, within which the steam is given a vigorous whirling motion. As a result the entrained water and the oil is thrown against the outer casing and trickles down to the outlet at the bottom. The steam, now perfectly dry, finds ready escape through a central opening above. This exhaust head contains no baffle plates to rattle loose, produces no back-pressure upon the engine, and insures perfect separation.

The Sargent Steam Heater Company, First National Bank Building, Chicago, Ill., is issuing a pamphlet illustrating and describing its device, which is an instrument for indicating the pounds of steam flowing through it, irrespective of the pressure. The catalogue states that "it shows at a glance the quantity of steam being used in the engine, steam pump, heating system or drying room; that it is used for engines where surface condensers are unavailable, for testing the capacity of boilers, and for measuring the amount of steam used in each department of industrial plants. By placing it on the steam pipe of your engine, you can tell at a glance the horsepower an engine is developing or the steam required to carry your load. If the meter is located in a steam header, and the coal weighed, the pounds of water evaporated per pound of coal can be determined by inspection, and the cost of evaporating a pound of water with different grades of coal is readily determined without the expense of elaborate tests."

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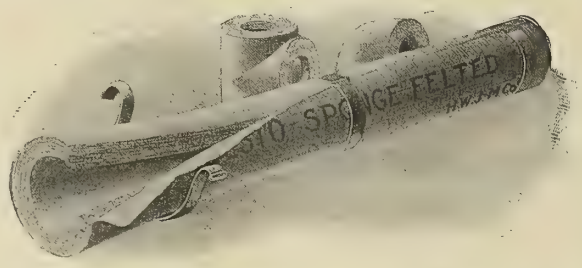

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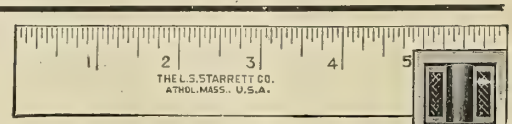

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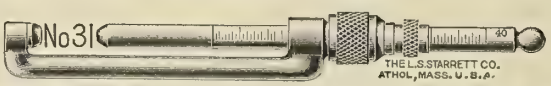

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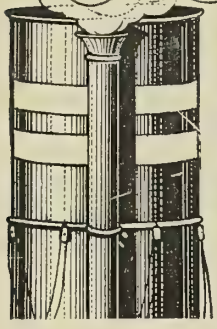

Dixon's Flake Graphite unlike oil does not injure boilers; in fact, it is an excellent preventive of corrosion. It is used in marine service with complete success for lubricating cylinders, valves, thrust bearings, stern bearings, etc.

12 pages in our tenth edition of "Graphite as a Lubricant" (just printed) treat of marine lubrication.

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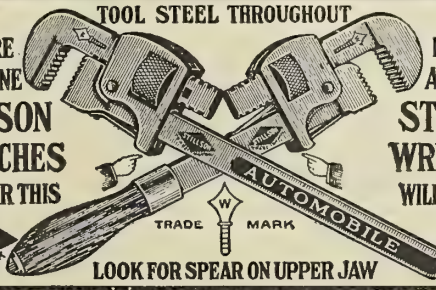

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FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

Williamsport Wire Rope Co., Williamsport, Pa., has issued catalogue No. 17, which contains valuable data, illustrations and descriptions relative to wire rope, its uses, etc. In the back of this is a form of information blank. By filling out same and sending to the above company, the rope best suited for service required will be recommended.

Single punches and shears of all sizes for all kinds of work, are the subject of a catalogue issued by the New Doty Manufacturing Company, Janesville, Wis. This catalogue states that the company's punches and shears are of a heavy and substantial design, self-contained, well proportioned and amply strong for their specific duty. A free copy of this catalogue will be forwarded to those interested, upon application.

"Wire Rope and its Application to the Transmission of Power," etc., is the title of a neat booklet issued by the Trenton Iron Co., Trenton, N. J. Bound in cloth, it is a very serviceable book on the uses and strength of wire rope, including sheaves and tackle blocks. This company also issues a paper bound booklet on The Application of Wire Rope to Haulage, Shafts and Inclined planes, by Mr. Wm. Hewitt, M. E. This is well illustrated and is a complete discourse on this subject.

The results of a compound engine test made at Sibley College, Cornell University, by Professor R. C. Carpenter, of an engine manufactured by the Buffalo Forge Company, Buffalo, N. Y., are published in pamphlet form by the above mentioned concern. This pamphlet is second in a series to be issued. The text of all will be the tests of plants in service and reliable data, all relating to this company's output. Readers who mention this magazine will receive these pamphlets free of charge.

Vessel owners, naval architects and others who are planning to install marine boilers should not fail to send to the Almy Water Tube Boiler Company, Providence, R. I., and ask for a catalogue of this company's sectional water tube boilers, which are built for steamships, river steamers, both propeller and stern wheel, yachts, launches, fire boats, and also for use as donkey boilers on board ship. The water tube boilers made by this company are now in use on 370 vessels of every description, and the catalogue names and illustrates more than two hundred of them.

The Reliance Gauge Column Company, Cleveland, Ohio, states in a folder that the use of Reliance safety water columns furnishes an absolute check on the work of the fireman and makes it impossible for him to be careless. He has to keep the water right to keep the whistle quiet. The purpose of these appliances is not only to prevent boiler explosions, but to prolong the life of the boiler; reduce the cost of maintenance; lessen the waste of fuel; obviate stoppages, and protect life and property, all of which is accomplished by causing the water to be carried steadily at the proper level.

"Through 'Frisco's Furnace" is the title of a booklet issued by the Joseph Dixon Crucible Company, Jersey City, N. J., which tells in an interesting manner of the soundness of the steel constructed buildings in San Francisco under the test of earthquake, dynamiting and fire. There are seven half-tone illustrations showing very clearly the state of such buildings after the disaster. The purpose of the publication is to show how well Dixon's silica-graphite paint preserves the maximum strength of steel work of high buildings so that severe strains can be successfully resisted. A free copy of this interesting booklet will be sent to any reader who will mention this magazine.

The Case automatic high speed engine is the subject of an illustrated catalogue distributed by the New Britain Machine Company, New Britain, Conn. The catalogue states that this engine is of a type of construction which permits the adoption of the fewest possible working parts of the lightest weight, resulting in the attainment of high speed without injurious vibration. At the same time the increased speed reduces the necessary size of the cylinder, while the elimination of the connecting rods diminishes the height of the engine, thus insuring simplicity and compactness. The catalogue is very complete and shows in detail all the working parts of the Case engine.

"The Engineers' Contract Book," about 18" by 24" in size, is mailed by the Goheen Manufacturing Company, Canton, Ohio, with its compliments. In addition to containing several pages of contract blanks, reference is made to the several specialties which this company manufactures, such as oxidized carbon cement in paste form for filling pittings and inequalities on steel hulls, dry docks, etc., which cement is not affected, it is claimed, by the action of sea water. This company also manufactures galvanium for the permanent protection of galvanized iron. It is recommended very highly for boiler and other shops, wharf buildings, etc. This is claimed to be the only paint made that will adhere for years to new galvanized iron. The company's carbonizing coating is highly recommended for protecting boilers, tanks, etc.

The Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., has issued a new compressor catalogue consisting of 118 printed pages, printed in two colors, in which several new types and sizes of compressors are shown, including their new Hamilton Corliss machines. Those interested will receive a copy upon request.

"Tests of a Gas Engine Operated by a Suction Producer," by George H. Barrus is one of the articles in Bulletin No. 3, published by the Combustion Utilities Company, 60 Wall street, New York City. "The Use of Producer Gas for Power Generation," by Godfrey M. S. Tait, and "Gas Engine Efficiency," by Carleton Ellis, are also contained in this Bulletin. These three articles are all reprints from technical journals.

The latest issue of "Graphite," published by the Joseph Dixon Crucible Company, Jersey City, N. J., contains many articles of interest to engineers and boiler makers. This publication is issued in the interest of Dixon's graphite productions, for the purpose of establishing a better understanding in regard to the different forms of graphite and their uses. This company mines, imports and manufactures graphite, plumbago and black lead.

The attention of boiler makers and sheet metal workers, engineers and manufacturers and users of machinery and structural steel is called to Ryerson's Monthly Journal and Stock List, published by Joseph T. Ryerson & Son, Chicago, Ill. This is a publication of about one hundred and fifty pages. Readers mentioning this magazine will be placed upon the free mailing list upon request.

"File Filosophy" is the title of a booklet published by the Nicholson File Company, Providence, R. I. This is a little volume of 46 pages containing "hints and suggestions as to the proper methods of using files together with the various applications of the most common file." The volume is now in its fourth edition, and a free copy will be forwarded to readers who will mention International Marine Engineering.

The Eugene Dietzgen Co., Chicago, Ill., has issued a catalogue on drawing materials and surveying instruments. This contains many illustrations including metric scales, drawing outfits, pocket and surveying compasses, in fact all instruments used by the draftsman or surveyor, and will be found exceedingly valuable to those classes of industry.

Bar and angle cutters of every description built of steel plates, and punches with straight or overhanging jaw; horizontal or vertical, with or without shearing tools, double and triple combination, are described and illustrated in catalogue C, published by Henry Pels & Company, 68 Broad street, New York City, a free copy of which will be sent to all readers mentioning this magazine.

"Eureka" packing is described and illustrated in a folder issued by James L. Robertson & Sons, Incorporated, 48 Warren street, New York City. The claim is made that this packing is as nearly indestructible as it can be made, each strand being treated with a special compound before braiding, thus making it a permanent lubricant. "The highest pressure or heat cannot burn it." This firm's packings are made for all purposes—steam, air, gas and water.

The Erwood straightway swing gate back-pressure and check valve is illustrated in a folder issued by the manufacturer, Walch & Wyeth, 87 East Lake street, Chicago, Ill. The folder states that this valve possesses new and valuable features, being an embodiment of the features of a gate and check valve in one, and capable of performing not only the functions of either but affording a wide degree of adaptability and application possessed by no other single valve.

The Lippincott Steam Specialty & Supply Company's catalogue, which is devoted entirely to Lippincott indicators, reducing wheels, planimeters, and other indicating instruments, is carefully printed on coated paper, and is very instructive, giving considerable information concerning the method of construction of this company's instruments. The company states that it has a small edition on special paper and with heavy cover which will be sent free to those who inquire, until the special edition is exhausted, after which the regular edition will be sent. We would suggest that engineers interested in indicating, even if not at this time ready to place an order, should write for a copy of this catalogue, addressing the above company at Newark, N. J.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

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"High Duty Metal" is the title of a pamphlet issued by the Western Tube Company, Kewanee, Ill., being an account of the researches and experiments leading to its discovery. This metal is stated to be especially desirable for brass valves of all kinds.

Great Lakes Propellers is the subject of a booklet issued by the Great Lakes Engineering Works, Detroit, Mich. This booklet contains "Historical Notes on the Screw Propeller," and a description of the propellers made by the Great Lakes Engineering Works.

Those interested in centrifugal pumps should write to the Kingsford Foundry & Machine Works, Oswego, N. Y., mentioning International Marine Engineering, and ask for a copy of this company's booklet entitled "Centrifugal Pumping Machinery."

"How to Oil an Engine" is the title of a treatise published by W. W. Nugent & Company, 29 West Randolph street, Chicago, Ill. This publication, and a large catalogue of new and up-to-date oiling devices for hot members, will be forwarded free to readers who will mention this magazine.

Atlas fire tube boilers are described and illustrated in 72-page catalogue No. 125, published by the Atlas Engine Works, Indianapolis, Ind. The catalogue states that Atlas boilers are well known everywhere; that at least one may be found in daily service in almost every town and city in America; and that they are extensively used in foreign countries.

The Chicago Pneumatic Tool Company, Fisher Building Chicago, Ill., has issued special circular No. 56, calling attention to Duntley air cooled electric drills; portable grinders; blowers and drilling stands, and also to the latest type of "Little Giant" drills with Corliss valves.

Hydraulic jacks and boiler makers' specialties are described and illustrated in a catalogue issued by A. L. Henderer's Sons, 740 Maryland avenue, Wilmington, Del. Among the boiler maker specialties described are roller tube expanders of various sorts; expanders for water tube boilers; steel screw punches and many other punches, and test or pressure pumps.

Bulletin No. 134 in the Sturtevant Engineering Series has just been issued by the B. F. Sturtevant Co., Hyde Park, Mass. It is entitled "Steel Pressure Blowers," and relates to high-pressure types of fan blowers for foundry and similar uses. It contains a valuable table of fan capabilities for various size foundry cupolas.

BUSINESS NOTES.

A large order for manganese bronze.—The Ajax Metal Company, Philadelphia, Pa., has received an order from the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for 600,000 pounds of manganese bronze. The specifications called for the following qualifications on a specimen 2 inches long between measuring points, by ½-inch diameter; tensile strength 65,000 pounds per square inch; elastic limit 30,000 pounds per square inch; elongation 15 percent; contraction 25 percent.

The Ideal Automatic Pump Governor Co., 15 Whitehall street, New York, is equipping the steamers of the American-Hawaiian Line, the Union S. S. Co.'s oil burning steamships *Minnetonka* and *Minnewaska,* and all the Grace Line steamships that are using oil burners, with "Ideal" automatic pump governors. The Broome street steam fire engine, No. 55, belonging to the city of New York, which was recently equipped with the governor, worked all night at a fire and had a pressure of 80 pounds on the hose, which made a saving of a ton of coal in one night, as well as saving the great wear and tear on the hose. The pressure was uniform at all times.

Shipwrecked schooner rescued by a gasoline engine pilot boat. George H. Terry Company, 92 Chambers street, New York City, eastern, foreign and general distributing agent for the Lamb engines, made by the Lamb Boat & Engine Company, Clinton, Iowa, recently received a letter from one of its customers, for whom it installed a high power Lamb engine in a pilot boat, operated from the mouth of the Cape Fear river, telling of this incident. As all seafaring men know, Cape Fear is one of the most dangerous points on the Atlantic coast, "Frying Pan Shoals," extending into the ocean some twenty miles. Several weeks ago there was a heavy storm off the Cape and a large schooner was dismasted and driven ashore. It is reported that not a steam tug in the harbor dared to go to the rescue, but that this gasoline engine driven pilot boat went out into the teeth of the storm, towed the dismasted schooner around "Frying Pan Shoal," and brought her safely into port.

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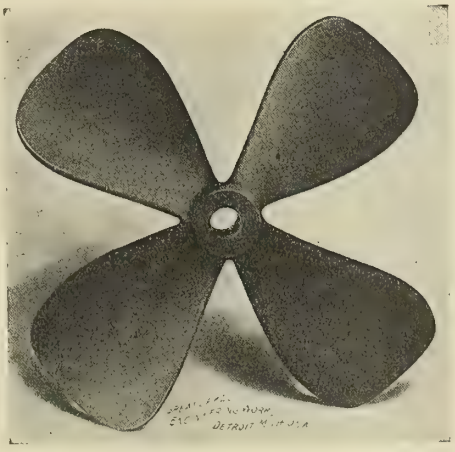

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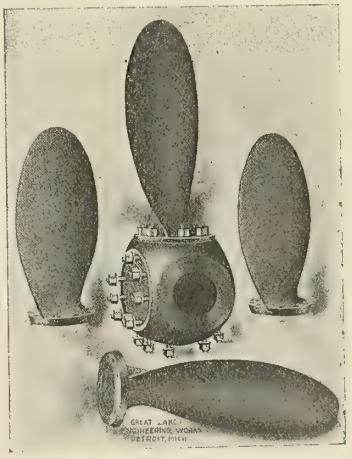

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MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

Owing to the rapidly increasing demand for its products throughout the Southern States, the Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill., has opened an office 1012 Memphis Trust Building, Memphis, Tenn., in charge of Mr. J. Francis Small.

Not a luxury, but a necessity on every ship, is the claim that is made by the Nicholson Ship Log Company, Cleveland, Ohio, for its log. The exact speed of the moment is constantly before the navigator and is recorded on a chart. Also the distance run is shown on the counter. Catalogue free to readers of International Marine Engineering.

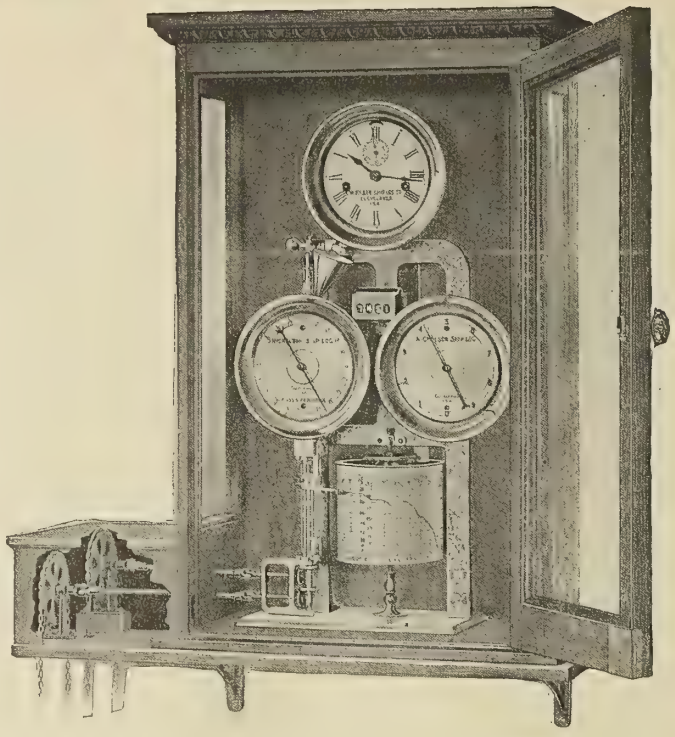
Mr. P. A. Jerguson has purchased the plant, contracts, good will, etc., of the William T. Bonner Co., 246 Summer street, Boston, Mass., and will continue the business under the name of Jerguson Manufacturing Co. Mr. Jerguson was originally superintendent for the Wm. T. Bonner Co., and has had an extended experience in practical marine, stationary and locomotive engineering, and particularly in connection with the mechanical appliances on warships, and he is therefore admirably fitted for making the special equipment which he proposes to manufacture.

There is nothing like a trial of "Albany Grease" to make one satisfied that it is an ideal lubricant; when it has been used for a number of years one is convinced that this is so, say Adam Cook's Sons, the manufacturers of this grease, 313 West street, New York City. James P. Hannigan, chief engineer with the Denver & Rio Grande Railroad Company, at the Burnham, Colo. shops, in writing to Messrs. Adam Cook's Sons, says: "I am a great advocate of Albany Grease. I have used it for a number of years, and I would not use any other kind of grease. I find it eliminates the danger of hot bearings, and as long as there is any Albany Grease in the cup it will feed down through and it will also feed through any old cup. We use nothing but Albany Grease in our plant."

The Marck steam trap.—E. F. Houghton & Company, 240 West Somerset street, Philadelphia, Pa., state that the natural position of the Marck Steam Trap is open and that it is therefore impossible for the trap to get into a condition whereby it will close and remain so. "This means that the moment it ceases to work the fact will be indicated by the blowing off of live steam. It means also that when the steam is placed upon the system the entire line will be blown free from all scale or grit before the trap closes. It will obliterate all danger of freezing, inasmuch as the traps must be open the moment the steam is taken off and remaining so, must drain the system free from water."

The tendency of modern steam plants to use higher steam pressures than heretofore has called for a better class of steam packings than has hitherto been necessary. Packings made of asbestos fiber have been found to meet all the requirements of this service, says the H. W. Johns-Manville Co., 100 William street, New York. The company has had great success with its line of "J-M" asbestos packings, which are made in various forms to meet all requirements and conditions. These packings possess high heat-resisting properties, are extremely durable and do not harden or blow out under the most severe conditions. "No rubber or organic materials are used in their make-up, and they will withstand any degree of temperature or pressure, are extremely pliable and will readily conform to irregular surfaces." The company will shortly issue an attractive catalogue showing its complete line of "J-M" asbestos packings, and copies of this will be mailed free upon request.

Repairing a cracked cylinder head.—The Smooth-On Manufacturing Company, Jersey City, N. J., reports the following method of repairing a cracked cylinder head which was reported to the company by the engineer who did the work: While the cylinder was hot, a partial vacuum was created in it and Smooth-On elastic cement was painted over the crack. The vacuum drew the cement in and this operation was continued until the crack would take up no more cement. Holes were then drilled and tapped at the end of the crack, and bolts put in to prevent a further extension of the crack. The crack was then painted with Smooth-On, and the patch laid in position; then it was carefully removed. The imprint of the crack was now shown on the under side of the patch, the Smooth-On sticking to it. The patch was then dished along the line of the imprint to make a recess to hold sufficient cement. The plate was then warmed, and a compound composed of Smooth-On iron cement No. 1, and Smooth-On elastic cement mixed half and half, applied to the warm plate with a small trowel, making a thin even coating; then the patch was laid in position. The three center bolts were brought up just taut, then the outside bolts were brought up tight and lastly the three center bolts were brought up as tight as possible, which forced the cement into the crack; then steam was turned on and the crack was tight.



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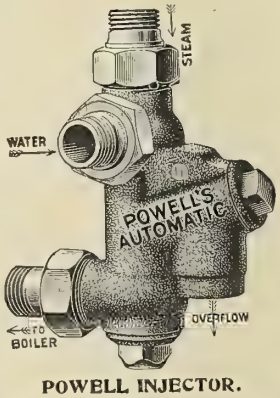

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" 95, P. J. McMahon, Box 199, Key West, Fla.
" 98, S. T. Powers, 723 Eleanore St., New Orleans, La.
" 100, H. G. Wootten, 1717 Makiki St., Honolulu, H. I.
" 101, Thomas G. Williams, Box 765, Norfolk, Va.
" 102, Fred W. Linsemeyer, 210 Clinton St., South Haven, Mich.
" 103, A. E. Pittman, 16 Pollock St., Box 225, New Bern, N. C.

TRADE PUBLICATIONS.

A combined lever and shear, a combined power punch and shear, and a flanging clamp are the subject of a folder issued by Joseph T. Ryerson & Sons, Chicago, Ill. Regarding the combined lever punch and shear, the folder states that this is a double end machine having a cutting-off shear on one end and a triple punch attachment on the other end, so that there are three punches, each working independently of the others. This machine is so constructed that by inserting the sliding key in the different key holes in the front of the machine, any one punch can be operated independently of the others, and by inserting keys in all three holes all the punches may be operated at the same time. This machine may also be furnished with angle, tee or channel iron shearing attachments.

Every user of staybolts should send to the Flannery Bolt Company, Frick Building, Pittsburg, Pa., for a copy of a 12-page folder entitled "The Staybolt Subject in Brief." The folder comprises the following sheets: 1-2. "Reasons in Favor of Using the Tate Flexible Staybolt:" 3. "Illustrations of the Ordinary or Rigid Staybolt;" 4. "The Present Method of Rigidly Staying the Locomotive Firebox;" 5, "The Best Material in Rigid Staybolts Fails to Stop Breakages;" 6. "The Stresses which Rupture a Staybolt Exceed the Elastic Limit;" 7. "The First Cost and Cost of Renewing Broken Staybolts;" 8. "The Flexible Staybolt Is Recognized as a Most Valuable Appliance;" 9. "Several Types of Flexible Staybolts—Illustrations;" 10. "A Few Installations of the Tate Flexible Staybolt—Illustrations." Free copies of the folder can be had by addressing the Flannery Bolt Company, and mentioning this magazine.

The loose nut trouble in engines and vibrating machinery is overcome by using the patent "Helicoid" lock nut, according to the manufacturer, Bayliss, Jones & Bayliss, Ltd., Wolverhampton, England, whose advertisement appears in this issue of INTERNATIONAL MARINE ENGINEERING. Our readers who will mention this magazine will be sent free literature fully describing the immense power of this nut, which it is stated is designed for high class engineering work of every description, and obviates the use of a check nut. The "Helicoid" lock nut is made by coiling on a mandril a bar of steel or other suitable metal of special section in a cold state in such a manner that a close helical coil, having a permanent state, is formed. This coil is then sawed to a suitable length according to the size of the nut. The blanks are then tapped, faced, shaped as required, and chamfered and countersunk at both ends. In tapping, the threads are cut to the same pitch as those of the bolt, but the internal diameter of the nut is made slightly smaller than the diameter of the bolt on which it is intended to be used, so that in the placing of the nut on the bolt, the former of necessity expands thereby bringing into action the spring of the coil.

Oil rivet forges are the subject of circular No. 105, issued by Tate, Jones & Company, Inc., Pittsburg, Pa. The folder states that rivet heating is the work for which these furnaces were originally designed, but that they are being used successfully for many purposes. "Fuel oil," "solar oil," "Texas oil," "crude oil" or other oils may be used. The tank is filled through a connection provided, and holds enough fuel for two days continuous run. Compressed air brought to the furnace through a hose or other connection, forces the oil up to the burner and furnishes the air for atomizing the oil. An air regulating valve is furnished which reduces the compressor pressure to twenty pounds. In the burner both compressed air and oil are controlled by one lever, and is adjusted with the proper proportion of compressed air and oil which is always right for atomization. This adjustment cannot be thrown out, and the burner therefore always perfectly atomizes, whether turned high or low. The advantages of these portable oil forges are stated to be: 1st, the small quantity of compressed air necessary to operate; 2d, the air reducing valve which holds the air at required pressure regardless of pressure at air compressor; 3d, the air and oil are controlled at the burner by one valve making it simple and easy to handle; 4th, the regulating valve is so adjusted that the operator cannot heat the rivets hotter than required; 5th, the burner perfectly atomizes the oil so that there is no waste.

NATIONAL ASSOCIATION OF ENGINE AND BOAT MANUFACTURERS.

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The Nelson Straight-Way Valves are illustrated and described in a folder being distributed by the Nelson Valve Company, Wyndmoor, Philadelphia, Pa. These valves have outside screw and yoke with iron body and are bronze-mounted. They are designed for a working pressure as explained in the circular up to 300 pounds or more.

Wood planing machines are the subject of a very handsome catalogue issued by Baxter D. Whitney & Son, Winchendon, Mass. This catalogue states that the first successful cylinder planer embodying the principles on which the modern planer is constructed, was built in 1846 by Baxter D. Whitney, the founder of this firm.

Every man who has to do with building or repairing steam boilers should send for a copy of a catalogue issued by Deuel & Freebury, Post Office Box 1091, Pueblo, Colo., describing this firm's flue beader. The device itself is shown in a number of good sized illustrations, and the manner in which it operates is made very plain.

A new type of water tube boiler, invented by D. Ahern, 263 South street, New York City, is fully described in a catalogue which Mr. Ahern is now distributing. The boiler is very compact, and of the water tube type. Its many features are fully described and illustrated in the catalogue, and copies will be sent upon request to any of our readers.

Hand lever shaping machines for metals, aluminium and alloys, stampings in wrought iron and steel for engineers and ship builders, valve reseating machines, plain and collared eye-bolts, graphite paint, and other engineering specialties are the subject of a catalogue issued by Crosier, Stephens & Company, Newcastle-on-Tyne, England. A free copy will be forwarded to any reader who will mention INTERNATIONAL MARINE ENGINEERING.

The fine tools and hardware specialties manufactured by the Sawyer Tool Manufacturing Company, Fitchburg, Mass., are thoroughly illustrated and described in a compact catalogue of 64 pages which is being distributed free of charge to all inquirers. Among the many tools which will be of interest to our readers are the following: calipers of various kinds; steel clamps; gauges of various kinds; hammers; levels; marking outfits; micrometers; center and flat face punches; rules in great variety; screw drivers; straight edges; squares of all kinds, and wire valve wheels.

The subject of refrigerating machinery is covered very thoroughly in a 92-page catalogue which is issued by Messrs. Arthur G. Enock & Company, Limited, Thane Works, Seven Sisters Road, Holloway, London, N., England. The catalogue is fully illustrated, and contains a great deal of valuable information regarding the general subject of refrigeration. An important feature of this firm's refrigerating plant is a device which prevents any possibility of explosion by the liquid or oil getting into the compressor. Copies of this catalogue can be had by any of our readers who write for one and mention INTERNATIONAL MARINE ENGINEERING.

Soluble metal boiler compound is described in a circular which is being distributed by the New Era Manufacturing Company, Kalamazoo, Mich. The feature of this compound is that it is in metallic form ready for being placed in the boiler. The circular states that it dissolves in hot water and unites chemically with the mineral salts contained in the water. In this way a mineral compound is formed which will not harden or form into scale. By keeping a certain proportion of this compound in the boiler all the time, it is claimed that boiler scale cannot be formed, and any scale that has been formed will be dissolved, and that as long as the proportion of compound is continued, a light metal coating is formed on the surface of the boiler and the flues preventing not only the formation of scale but also preventing pitting. The circular gives full information regarding the use of this compound and the proportions under ordinary circumstances.

Duplex and compound air compressors, steam and belt driven, are the subject of Bulletin No. 30, issued by the Bury Compressor Company, Erie, Pa. The catalogue states that the duplex type of air compressor possesses many advantages over the various forms of single compressors. The space occupied is more nearly square, thereby often coming within the space available. In compounding either or both the air and steam cylinders it avoids the extreme length that must necessarily result from a tandem compound arrangement. A more uniform crank effort is realized insuring a more uniform motion, with less stress on the driving mechanism, and consequently longer life to all parts. The accessibility is not impaired in the compound or duplex arrangements. In the steam driven machines, the governor can be so regulated that the compressors will stop and start automatically with the demand made upon it for air. "Considerable saving results from a compound arrangement of the air cylinders and an efficient cooling between the stages of compression."

The State of the Art

in Caliper and Divider making is pretty well shown in our Catalogue. We make about every style that experience has shown to be desirable.

Send for FREE Catalogue No. 17-L of Fine Mechanical Tools.

The L. S. Starrett Co.
Athol, Mass., U. S. A.

PROPOSALS FOR FURNISHING SUBMARINE BOATS—Under the provision embodied in the Naval Appropriation Act of June, 29, 1906, authorizing the Secretary of the Navy to procure subsurface or submarine torpedo boats, all boats of the kinds mentioned that may be submitted ready for tests and trials by February 18, 1907, will be tested by the Department. Full information as to the character and conditions of test may be obtained on application to the Department. Proposals for furnishing such boats for the Navy will be received until 12 o'clock noon February 18, 1907 and publicly opened at that time. Forms of proposals will be furnished on application. TRUMAN H. NEWBERRY, Acting Secretary of the Navy. 10-26-06.

THE CRANDALL PACKING CO.
PALMYRA, NEW YORK
MANUFACTURER OF HIGH GRADE PACKINGS
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WILL NOT BLISTER, PEEL, OR WASH OFF
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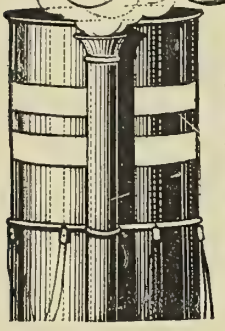
DIXON'S GRAPHITE on the Marine



Dixon's Flake Graphite unlike oil does not injure boilers; in fact, it is an excellent preventive of corrosion. It is used in marine service with complete success for lubricating cylinders, valves, thrust bearings, stern bearings, etc.

12 pages in our tenth edition of "Graphite as a Lubricant" (just printed) treat of marine lubrication.

Get copy 75-C for yourself.

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THERE IS ONE, AND ONLY ONE GENUINE STILLSON WRENCH
AND THAT IS MADE BY THE WALWORTH MFG. CO. BOSTON, U.S.A.

TOOL STEEL THROUGHOUT

IN FUTURE ALL GENUINE STILLSON WRENCHES WILL BEAR THIS

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LOOK FOR SPEAR ON UPPER JAW

WALWORTH MFG. CO. Sole Manufacturers, BOSTON, U.S.A.
FOR SALE BY DEALERS AND JOBBERS IN EVERY PART OF THE WORLD.

Curtis pneumatic cranes are the subject of a booklet issued by Curtis & Company Manufacturing Company, St. Louis, Mo.

McNab & Harlin Manufacturing Company, 50 John street, New York City, states that it carries in stock such a large line of valves, cocks, fittings, etc., that prompt shipment is assured.

Industrial railways are described and illustrated in pamphlet .064, issued by C. W. Hunt Company, West New Brighton, Staten Island, N. Y.

"Notes on the Use of Gas Engines for Marine Propulsion" is the title of a pamphlet issued by Lewis Nixon, 26 Cortlandt street, New York City. A free copy of this pamphlet will be forwarded to readers mentioning this magazine.

Readers of this magazine interested in the subject of compressed air and electrical appliances should ask to be put on the free mailing list of "Ideal Power," published by the Ideal Power Publishing Company, 1508 Fisher Building, Chicago, Ill.

Catalogue C, 1906, issued by the International Boiler Works Company, East Stroudsburg, Pa., is a handsomely illustrated volume of 40 pages, illustrating and describing in detail this company's boilers.

Users of babbitt metal will have sent to them free of charge by the New Era Manufacturing Company, Kalamazoo, Mich., a 16-page booklet which gives valuable information regarding the use of babbitt and other anti-friction metals.

A 32-page magazine, entitled "Engineer and Fireman," is offered free for three months by the Penberthy Injector Company, Detroit, Mich., to subscribers of this publication. In writing to the Penberthy Company, be sure to mention the fact that you are a subscriber to INTERANTIONAL MARINE ENGINEERING.

"The state of the art in caliper and divider is pretty well shown in our catalogue," is the statement made by the L. S. Starrett Company, Athol, Mass., manufacturers of precision instruments and fine mechanical tools. Catalogue 17-L will be sent free to readers mentioning this magazine.

"The Valve World," published by Crane Company, Chicago, Ill., a free copy of which will be sent to any reader mentioning this magazine, contains in its July-August edition the usual number of articles of interest to steam users, and has as always, many handsome illustrations.

The September and October Stock List of the Scully Steel & Iron Company, of Chicago, Ill., should be in the hands of all boiler makers, engineers and users of machinery and structural steel. Readers mentioning this magazine will be placed upon the free mailing list.

Ingersoll-Sargeant rock drills are the subject of catalogue 45B, issued by the Ingersoll-Rand Drill Company, 11 Broadway, New York City. This is only one of a great number of catalogues issued by this company describing its many lines of pneumatic machinery.

Sheet steel piling is the subject of a 24-page catalogue distributed by the United States Steel Piling Company, 135 Adams street, Chicago, Ill. So much piling is used in connection with marine work in various ways that there are many of our readers who will find a copy of this catalogue very instructive. Copies can be had free upon application.

Users of marine telephones and annunciators should write to the Electric Goods Manufacturing Company, 115 Purchase street, Boston, Mass., for a copy of "Telephone and Annunciator Practice," the devices described in which the catalogue states are approved by the United States government for use in the navy, and which are also in use on a number of large merchant vessels, including the Great Northern steamships *Minnesota* and *Dakota*.

BUSINESS NOTES.

STUDENTS THINKING OF ENROLLING in some course of instruction by correspondence, in marine engineering, mechanical drawing, electrical engineering, etc., will read with interest the advertisement of the American School of Correspondence, at Armour Institute of Technology, which appears in this issue of INTERNATIONAL MARINE ENGINEERING.

OIL WASTE SAVING MACHINE.—The steam turbine extractor, manufactured by the Oil Waste Saving Machine Company, 1307 Real Estate Trust Building, Philadelphia, Pa., will save, according to the manufacturer, more than ninety percent of wiping waste and practically all of the oil contained therein. The device has no driving gears or small parts, and occupies little space. This company's machines are now in use on board the United States ships *Pennsylvania, Colorado, Maryland* and others, and are also in use in many of the government arsenals and navy yards, besides having been installed in a vast number of power plants throughout this and other countries. These machines are sent on trial, and catalogue and full information will be forwarded upon request, to readers of INTERNATIONAL MARINE ENGINEERING.

SWEET'S SEPARATORS made by the Direct Separator Company, Syracuse, N. Y., have been on the market for ten years, and the manufacturer states that there are nearly five thousand of them in use; some removing water from live steam; some taking oil out of exhaust steam; some separating water from ammonia gas, and some for removing moisture and oil from compressed air. The smallest made weighs about 50 pounds and the largest 24,000 pounds. They are made in all styles and weights, and there are no corners that they cannot be arranged to fit. Those interested should write to the company, mentioning this magazine, and ask for a free copy of its catalogue.

"THE LARGEST EDUCATIONAL INSTITUTE IN THE WORLD."—The fifteenth anniversary of the founding of the International Correspondence Schools, Scranton, Pa., was celebrated October 16, 1906, and was in keeping with the remarkable history and progress of this institution. The exercises at the Lyceum Theatre were noteworthy for the historical paper read by President Thomas J. Foster, in which he dealt in an exhaustive manner with the organization's history and the methods of the school. Other officials of the school read papers explanatory of its methods. The banquet in the Armory at which more than nine hundred guests were seated, was the most elaborate function in the history of Scranton. Among the city and State officials present were Honorable Samuel W. Pennypacker, Governor of Pennsylvania; Mayor J. B. Dimmick, of Scranton; Honorable W. L. Connell and Judge H. M. Edwards. As President Foster explained in his address, the International Correspondence Schools had their beginning in an effort to teach coal miners to qualify for the examinations which candidates for appointment as mine inspectors and foremen must pass in Pennsylvania and other States. In perfecting the system to teach miners, the institution learned that it could teach all of the engineering trades and professions with equal success. More than one hundred thousand students have so far been enrolled in the drawing courses which are part of the instruction in all the engineering courses. An idea of the present scope of instruction may be obtained from the thirty-one schools into which the teaching organization is divided. Each of these is in charge of a principal who has an assistant principal, and from half a dozen to more than fifty examiners and assistant instructors. There is also a railway organization in charge of the general manager, in which there are employed eighty salesmen. The schools own and operate seven air brake construction cars, a dynamometer car, and a passenger railway service testing car. There are instructors lecturing on composition of fuel and firing on nine cars that are furnished by railroad companies, and the institution is soliciting business on more than one hundred railways in the United States and Canada, to whose employees are sold locomotive running scholarships at reduced prices in consideration of facilities for doing the work provided by the companies. Ninety percent of the students when they enroll cannot work fractions, and therefore those who complete only arithmetic are benefitted. Soon after the founding of the schools, requests from employers for students and graduates for special positions became so numerous that the schools were compelled to establish a special department, called the Students' Aid Department, to take charge of the work, and through this department the schools have helped thousands to better positions without charge, and have increased the salaries by sending reports to employers as each branch of the student's course is finished; by writing special letters of recommendation to prospective employers; by sending names of students to firms inquiring for help; and by furnishing students with lists of names of concerns requiring help in certain lines. Many employers having students in their employ and wishing to advance them, write to this department to inquire what progress these students are making in their studies, and with the students' consent this information is willingly furnished. On other occasions this department sends such information to present prospective employers at the student's request. About twelve thousand employers throughout the country are regularly receiving these reports. Catalogues and full information will be forwarded to all interested who will mention this magazine.

What is so beautiful as a trim, graceful, white craft, standing out against the blue of sky and ocean?

There is only one white pigment —OXIDE OF ZINC— that will remain white under marine conditions.

The New Jersey Zinc Co.

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Free, Our Practical Pamphlets :

"The Paint Question"
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"Specifications for Architects"
"French Government Decrees"

We do not grind zinc in oil. Lists of manufacturers of Oxide of Zinc paints will be furnished on request.

ROCHESTER FORCED FEED LUBRICATORS, manufactured by Greene, Tweed Company, 109 Duane street, New York City, are stated to have proved to be an unequaled success from every standpoint, and that their adaptability to the demands of marine engineers especially, is pronounced. The company invites correspondence with designers and builders of marine craft.

HIGH GRADE SEMI-STEEL PROPELLER WHEELS, solid or sectional are manufactured by the Great Lakes Engineering Works, Detroit, Mich., designers and builders of steel, freight and passenger ships; steel car ferries; hydraulic dredges; air compressors; marine engines, and ice and refrigerating machinery.

THE C. H. WHEELER MANUFACTURING COMPANY, manufacturers of condensers, pumps, heaters, water-cooling apparatus, etc., 18th and Lehigh avenue, Philadelphia, Pa., has taken space in Section R, Philadelphia Bourse, Machinery Hall, where a permanent exhibit and branch office will be maintained under the care of Mr. F. S. Broadhurst.

NEW "IMPERIAL" TYPE TEN air compressors, manufactured by the Ingersoll-Rand Company, 11 Broadway, New York City, are powerful duplex compressors with a central fly wheel and a heavy solid sub-base. Myer or Corliss steam valves are used. This type of compressor is stated to be extremely compact and with an unusual air capacity per unit floor space.

BERTRAM'S OIL POLISH

Especially suited for exposed marine brass work—keeps its shine three times longer than any other polish—is absolutely harmless and non-inflammable—the marine polish of the world—order from your ship chandler or write to
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RELIABLE—SATISFACTORY—EFFICIENT

FOR PISTON RODS AND VALVE STEMS OF MAIN AND AUXILIARY ENGINES

The United States Metallic Packing Co.

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"THE MOST THAT CAN BE GOT OUT of a boiler and engine the less the power will cost" is the statement made by James L. Robertson & Sons, Incorporated, 48 Warren street, New York City, apropos of the Robertson return copper coil feed water heater, which it is stated combines new and valuable features with a guarantee of 208 to 210 degrees, without back pressure.

THE NORTON EMERY WHEEL COMPANY, Worcester, Mass., has changed its name to the Norton Company, the reason for the change being that the grinding wheels made by this concern are no longer made of emery. This natural abrasive having been completely displaced by the artificial abrasive "Alundum," which the company manufactures in electric furnaces at Niagara Falls. This abrasive, which the company states is harder than any known substance except the diamond, and which, because of its cutting qualities, has caused the abandonment of the emery in the Norton manufactures, is made by taking the purest amorphous oxide of aluminum found in nature, known as "bauxite," purifying it and melting it in the electric furnace in a large homogeneous bath. Upon cooling the molten fluid solidifies and crystalizes in solid masses of alundum.

"THE AVERAGE EDUCATED MAN earns $1,000 per year. He works forty years, making a total of $40,000 in a lifetime. The average day laborer gets $1.50 per day, 300 days in the year, or $450 per year. He earns $18,000 in a lifetime. The difference between $40,000 and $18,000 is $22,000. This is the minimum value of an education in mere dollars and cents. The increased self-respect you gain cannot be measured in money." This minimum of $22,000 additional and increased self-respect, the American School of Correspondence, at Armour Institute of Technology, Chicago, Ill., states may be obtained through one of its correspondence courses in marine engineering, mechanical drawing, electrical engineering, stationary engineering, locomotive engineering, structural drafting, etc. The school states that any ambitious man, no matter how little schooling he has had, can start now and fit himself for any position he is ambitious to fill. "Time, cost and location are no barriers." The American School of Correspondence allows you to suit your studies to your convenience, and you pay for your instruction according to your circumstances. The books (averaging about 50 in a course) furnished to students as they progress, are substantially bound in cloth. In addition, if a student enrolls at the present time, he gets without extra charge the "Reference Library of Modern Engineering Practice" in 12 volumes, 6,000 pages.

ANNUAL MEETING.—The annual meeting of the stockholders of the Aurora Automatic Machinery Company, which is a subsidiary company of the Independent Pneumatic Tool Company, Chicago and New York, was held in Chicago last month, and the following directors elected for the ensuing year: James B. Brady, W. O. Jacquette, John P. Hopkins, John D. Hurley, A. B. Holmes, M. S. Rosenwald, Simon Florsheim and C. E. Brikson. At a subsequent meeting of the Board of Directors the following officers were elected: John P. Hopkins, president; W. O. Jacquette, first vice-president; John D. Hurley, second vice-president; C. E. Erickson, treasurer, and A. B. Holmes, secretary. The regular quarterly dividend of three percent was declared.

STANDARD ROLLER BEARING CO.—Samuel S. Eveland, on behalf of the Standard Roller Bearing Company, Philadelphia, Pa., of which he is vice-president and general manager, has purchased for that company the entire plant and real estate of the Pennsylvania Iron Works Company, which adjoins its present property. By this purchase the Standard Company has secured five factory buildings with a total of over 110,000 square feet of floor space, with real estate 1,600 feet by 120 feet wide, all located on the main line of the Pennsylvania Railroad and connected with the property which it now occupies, making the total length of all property over one-half mile, with an average width of 200 feet, covering 500,000 square feet of floor surface. The cash price paid for the above property was nearly $250,000, and it will immediately be equipped with a full line of machinery at an expense of over $200,000. In addition to the above property, the Standard Roller Bearing Company is at present erecting probably the largest reinforced concrete building in Philadelphia or vicinity, five stories in height, 100x210 feet. This building will be devoted exclusively to the manufacture of annular ball bearings, etc. Over 1,200 hands are now employed, and as soon as the concrete building is in full operation over 1,800 will be employed. When alterations are completed on the Pennsylvania Iron Works property, over three thousand will be employed. During the past few months, the company has built and equipped a large crucible steel casting plant, as well as an iron and brass foundry. It has also just completed a drop forge plant 100x150 feet, fully equipped with Billings & Spencer drop hammers, and in future the company will manufacture all its drop forgings. It now manufactures its own steel balls, and brass, iron and crucible steel castings, and, in fact, the only materials which are now purchased are the raw materials used.

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VICE-PRESIDENT

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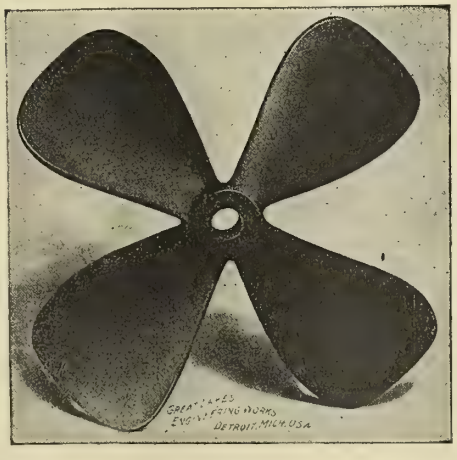
SECRETARY & TREASURER

GREAT LAKES ENGINEERING WORKS

DETROIT-MICHIGAN

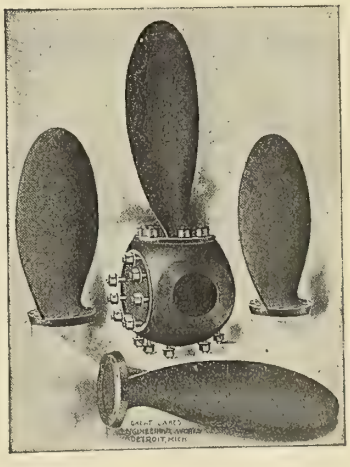


MANUFACTURERS OF

HIGH GRADE SEMI-STEEL

Propeller Wheels

Solid or Sectional



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STEEL FREIGHT AND PASSENGER SHIPS

STEEL CAR FERRIES

HYDRAULIC DREDGES

HIGH DUTY AIR COMPRESSORS

MARINE ENGINES

ICE MAKING AND REFRIGERATING MACHINERY

ON ANOTHER PAGE OF THIS ISSUE will be found a brief account of the work and recent celebration of the fifteenth anniversary of the International Correspondence Schools, Scranton, Pa. We wish to remind every one contemplating taking up any course by correspondence to read this article, and to write to the International Correspondence Schools.

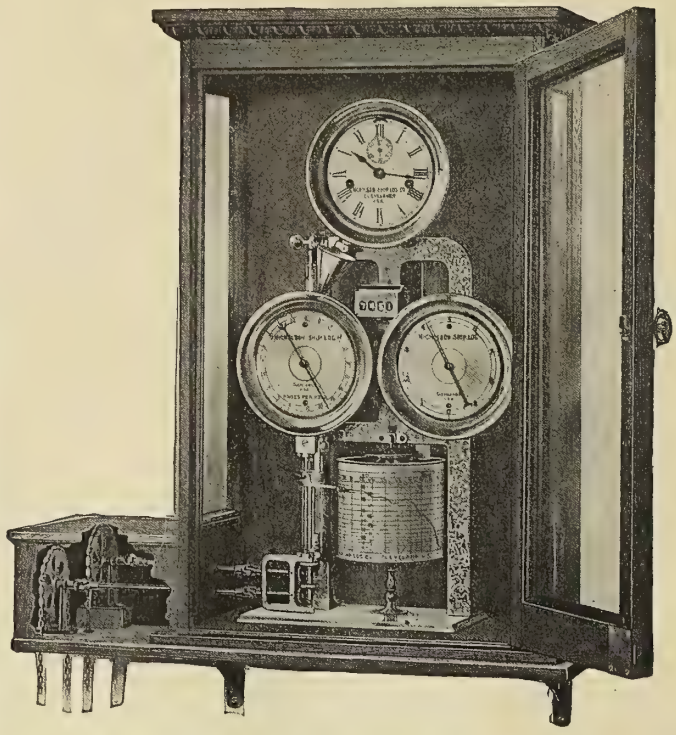
AUTOMATIC OIL GUN CANS.—M. E. Mosher, Rochester, N. Y., is finding an excellent sale for his Rochester automatic brass oil gun cans. These cans are made in different sizes to suit all sorts of conditions where lubricating oils are used. The exclusive features claimed for these cans are that they are self-oiling, self-cleaning, that they feed in any position, that it is impossible to overfill the cans, that there is no wasting of oil, that each can has spring or force feed, etc. A circular describing these cans will be sent upon request by Mr. Mosher.

EUREKA JOINT CEMENT. Joseph T. Ryerson & Sons, Chicago, Ill., are offering for sale Eureka steam or iron joint cement, which it is claimed surpasses red lead or mineral paint moistures at one-half the cost. This cement is claimed to be impervious to water, steam, etc., and is designed especially for all joints, seams, sheet laps or riveting on cement on lap joints. It is put up in packages varying from five to five hundred pounds in weight. Eureka cement is not new by any means, having made a reputation for itself during the thirty years that it has been on the market.

A MECHANICAL BOILER CLEANER.—All of our readers will be much interested in the mechanical system of cleaning boilers offered by the Buckeye Boiler Skimmer Company, Toledo, Ohio, as described in a large catalogue which this company is distributing, and copies of which can be had by referring to this magazine. Many claims are made for this device including the following: that it doubles the life of a boiler; lessens the danger of explosion; costs nothing to operate; always works when the boiler works; removes all scum as fast as it is formed on the water line, and is very economical in that it increases the steaming capacity of a boiler and thus reduces fuel bills. The company is so confident of the efficiency of this device that it guarantees results, and if a skimmer is used, and does not prove satisfactory, it can be returned. The claim is made that if one of these skimmers is used there is no need of using boiler compound or any other device for preventing the formation of boiler scale.

ALBANY GREASE A SUPERIOR LUBRICANT.—Adam Cook's Sons, 313 West street, New York City, makers of Albany Grease, recently received a letter from E. P. Beyland, of the University of Tennessee, Knoxville, Tenn., which should prove of interest to every one seeking for the best in the way of lubricants. We quote as follows: "The samples of Albany Grease and cup arrived in due time. The No. 3 Albany Grease gave entire satisfaction on the crank shaft bearing of my gasoline launch motor, and now I have a clean engine, a neat engine pit and a well lubricated crank shaft. The lubrication is as near perfect and automatic as it is possible to get. When I wish to start my engine now, I do not have to fill greasy oil cups, spill half of it, and continually watch them afterwards to see if they are feeding, for the Albany Grease is always ready for work and feeds automatically and at the end of the run, I do not have to shut off the lubrication to keep it from feeding and running all over my engine and boat. The Albany Grease feeds only when engine is running and stops when the engine does."

LIFE BOAT DAVITS.—The "Welin Quadrant" davit, illustrated on page 377 of our issue of September last, is the invention of Axel Welin, a Swedish mechanical engineer and inventor. Not until the boat has been properly manned, provisioned and everything else got ready, is it necessary to think about the gear. The top of the davit at first moves almost parallel with the deck, and by the special arrangement of the falls, the keel of the boat is slightly eased off the inside chocks, the outside ones being pushed away by the boat itself as it moves outward. Should the ship have a list, and the boat in question is on the high side, the davits are run out to their extreme position; if on the low side of the vessel, they are stopped at the proper point. The handling of the gear is safe and no danger can attend an accidental "let go" of the handles. Where two or more boats are placed in a row, double frames may be used between the boats to save fore and aft space. These davits require only two men for working them. The apparatus is so simple that there is nothing to remember and nothing to forget or overlook. Not only sailors, but any man can quickly and easily become acquainted with this gear. Few inventions have met with such a rapid introduction and acceptance as these davits have abroad. Only during the last eighteen months they have been fitted to more than 100 large ocean steamers, including such well-known steamships as the *Cedric, La Provence, Victorian, Virginian, Helig Olav and United States.* A model is on exhibition at the office of A. P. Lundin, Whitehall Building, 17 Battery Place, New York City.



THE NICHOLSON SHIP LOG

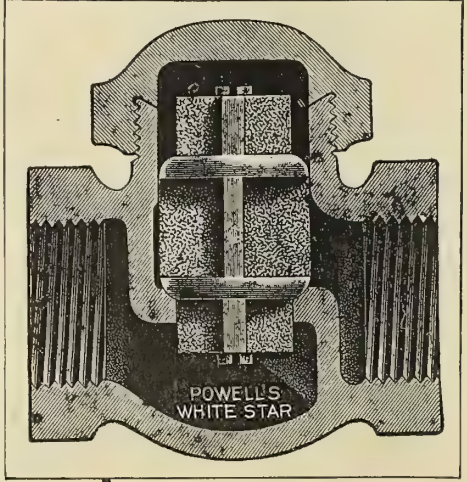
NOT a luxury but a necessity on every ship. Be up-to-date and equip your vessels with this excellent device. The exact speed of the moment constantly before you and recorded on a chart. Also the distance run shown on a counter. Let us send you our catalogue.

NICHOLSON SHIP LOG CO., Cleveland, Ohio

"WHITE STAR"

Reversible and Re-Grinding

CHECK VALVE



Disks in one piece with double seating heads.

Both ends made to gauge.

Economical because disk is reversible and saves putting in a new valve.

Will withstand a temperature of 2,000 degrees.

Simple and convenient—Re-grinding effected by inserting screw-driver in slot at either end of disk and rotating back and forth.

THE WM. POWELL CO.

Everything in the steam line for the boiler and engine room

CINCINNATI, OHIO, U. S. A.

New York Depots, 51 Cliff St. Philadelphia Depot, 515 Arch St.

Corner High and Congress Streets, Boston

FORGE EXHAUST AND BLAST APPARATUS, furnished by the B. F. Sturtevant Co., Hyde Park, Mass., is being installed by the Morse Twist Drill & Machine Co., New Bedford, Mass.; Brown & Sharpe Mfg. Co., Providence, R. I.; Providence Technical High School, Providence, R. I.; C. B. Hutchinson, Lyndonville, Vt.; Lynn Manual Training School, Lynn, Mass.

ALL GENUINE "STILLSON" WRENCHES will in future bear a trade mark consisting of the word "Stillson" in a diamond, is the statement made by the Walworth Manufacturing Company, Boston, Mass., manufacturers of engineers' and steam fitters' tools and supplies, boiler room and engine fittings and valves of all kinds.

"WE CAN FILL A TOOL BAG or the largest power-equipped establishment with pipe tools and machinery with equal satisfaction," is the statement made by D. Saunders' Sons, Yonkers, N. Y. This company's product is sold all over the world. A free catalogue will be forwarded to readers who will mention this magazine.

NEW ANCHOR WORKS AND MACHINE SHOPS.—The Camden Anchor-Rockland Machine Company, Rockland, Me., will move its plant to Camden, Me., in a few months. The company will erect new buildings at that location and will have its anchor works, boat shop and machine shops all together. This company manufactures the well-known Camden anchor and the Knox gasoline engines and launches.

THERE IS ONLY ONE WHITE PIGMENT, oxide of zinc, which will remain white under marine conditions, according to the New Jersey Zinc Company, 71 Broadway, New York City. This company will send free upon application its five pamphlets, "The Paint Question;" "Paint: How, Why and When;" "Paint in Architecture;" "Specifications for Architects" and "French Government Decrees."

"IF YOU HAVE NEVER USED 'PEERLESS' packing, you have never thoroughly enjoyed the hum of an engine in perfect working order," according to the Peerless Rubber Manufacturing Company, 16 Warren street, New York City. This company has agencies in all large cities of the country, a list of which will be found on advertising page 12. A card to the nearest agency will bring full particulars.

"DO YOU WANT GREASE IN YOUR BOILERS?" is the question asked by the James Reilly Repair & Supply Company, 229 West street, New York City. Of course nobody wants grease in his boilers, and the company states that the best way of getting rid of it is to use Ebsen's patent grease extractor, which has a large filtering area, besides being compact and accessible, and which has been adopted by many of the largest steamship lines and by the United States government.

ON ACCOUNT OF THE RAPIDLY INCREASING popularity of Franklin Compressors, manufactured by the Chicago Pneumatic Tool Company, Chicago, Ill., notwithstanding the fact that extensive improvements and additions were made to its Franklin plant the current year, the business has grown beyond its capacity and it is now adding another 150 feet to the machine shop which will increase the present capacity from 55 to 70 compressors per month.

A HANDY RACHET BRACE.—Every one of our readers who uses small tools, should write for circulars and other descriptive matter of a very ingenious and valuable patent left and right hand ratchet brace, which is manufactured by Messrs. Turner, Naylor & Company, Great Northern Tool Works, Sheffield, England. This brace has proved one of the most popular tools for sale in shipyards, boiler shops and elsewhere in the United Kingdom, and can be used for a great many purposes, including tapping and threading. It is practically all braces combined in one.

HELP AND SITUATION ADVERTISEMENTS.

Advertisements will be inserted under this heading at the rate of 4 cents (2 pence) per word. No advertisement will be inserted for less than 75 cents (3 shillings) for the first insertion, and for each subsequent consecutive insertion the charge will be 1 cent (½ penny) per word. Cash must accompany the order. Replies can be sent to our care if desired, and they will be forwarded without additional charge.

Navy engineer officer; Graduate of Naval Academy; young, experienced; desires civil position, has had eleven years' experience with man-of-war machinery. Address Position, care of INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

A splendid opportunity for a man with some money to invest in a well established manufacturing concern in New England. Address "Invest," care of INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York City.

Engine and boiler designer seeks position.—When you pay a large salary you want large returns. Why not employ a technical man who will measure up to a large salary. Such a man wants a chance to show his metal. "Mechanical Engineer," care of INTERNATIONAL MARINE ENGINEERING, 17 Battery Place, New York.

IMMEDIATE DELIVERY of large punches and shears is promised by J. J. McCabe, 14 Dey street, New York City, who states that you needn't wait three months, three weeks or even three days, but can have orders filled at once. Mr. McCabe is advertising some large machine tools at a greatly reduced price, and will send an illustrated circular upon request.

A LARGE ROOFING CONTRACT.—At Newell, W. Va., a new town on the Ohio river, opposite East Liverpool, O., the North American Manufacturing Co., is constructing several new buildings, to be used as a pottery plant. The H. W. Johns-Manville Co., 100 William street, New York, has secured the contract for covering the buildings of nearly the entire plant with its "J-M" asbestos roofing. About twenty different manufacturers of roofings were keenly competing for this contract, and it was only after exhaustive and most thorough tests that the contract was awarded.

AMERICAN NAVY SAFETY APPLIANCES AT MILAN.—One of the few American exhibits at the Milan (Italy) Exposition, now open for the season of 1906, is that of the "Long Arm" system of electrically operated bulkhead doors, made by the Long Arm System Company, Cleveland, Ohio. The exhibit consists of a horizontal sliding door, a vertical sliding door, a hatch gear and the electrical emergency station from which, aboard ship, all important bulkhead doors and the armor hatches are operated. The types of doors and the hatch forming this exhibit are all of the latest model. A great deal of interest has been manifested in Italy in the "Long Arm" system, which is in use on all the new warships of the United States navy, and it is doubtless somewhat due to the educating influence of this exhibit that a movement has been started in Italy to have incorporated in the governmental regulations for passenger ships a clause making the installation of power doors obligatory.

AJAX MANGANESE BRONZE

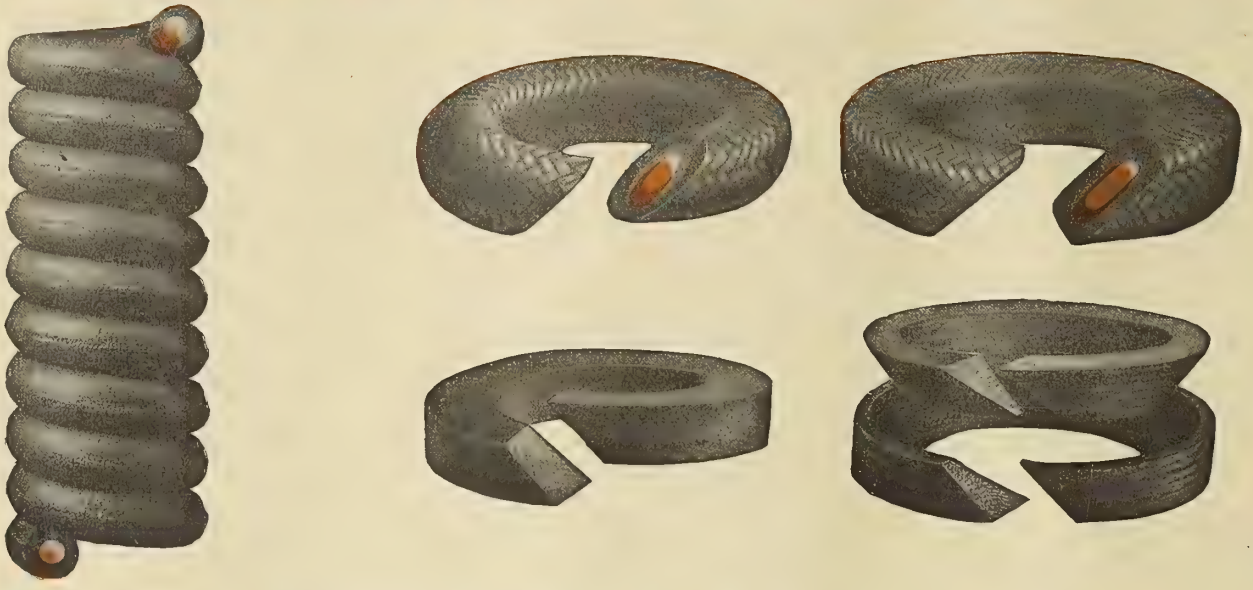
The Fact that a contract for 600,000 lbs. of Ajax Manganese Bronze has been placed with our Company by the United States Government—being the largest single contract ever placed—is no doubt sufficient recommendation as to its quality. It is guaranteed to exceed United States Government specifications.

The best Bronze for Propeller Wheels and Castings required to resist great strains. Resists Corrosion.

THE AJAX METAL COMPANY,

PHILADELPHIA, PA. -:- BIRMINGHAM, ALA.

The PEERLESS is PEERLESS



PEERLESS
Piston and Valve Rod Packing

If you have never used PEERLESS you have never thoroughly enjoyed the hum of an engine in perfect working order.

Get a box to-day and enjoy the "HUM."

Twelve to eighteen months perfect service.

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210-214 N. Third St., St. Louis, Mo.
1218 Farnam St., Omaha, Neb.
202-210 S. Water St., Chicago, Ill.
Cor. Common and Tchoupitoulas Sts., New Orleans, La.
1621-1639 17th St., Denver, Colo.
220 South Fifth St., Philadelphia, Pa.
17-23 Beale St. and 18-24 Main St., San Francisco, Cal.
Cor. Ninth and Cary Sts., Richmond, Va.
16 and 18 S. Capital Ave., Indianapolis, Ind.
1221-1223 Union Ave., Kansas City, Mo.
709-711 Austin Ave., Waco, Tex.
51-55 N. College St., Charlotte, N. C.
634 Smithfield St., Pittsburg, Pa.
Railroad Way and Occidental Avenue, Seattle, Wash.